

# Data Evaluation Record on the Reproductive Effects of Diuron on Mallard (*Anas platyrhynchos*)

PMRA Submission Number {.....}

EPA MRID Number 50308302

**Data Requirement:**

PMRA Data Code	{.....}
EPA DP Barcode	456399
OECD Data Point	{.....}
EPA MRID	50308302
EPA Guideline	850.2300

**Test material:** Diuron Technical

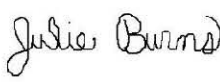
**Purity:** In-report: 98.4%;  
Certificate of analysis: 99.1%

Common name Diuron  
Chemical name:  
IUPAC: 3-(3,4-dichlorophenyl)-1,1-dimethylurea  
CAS: *N'*-(3,4-dichlorophenyl)-*N,N*-dimethylurea  
CAS No.: 330-54-1  
Synonyms: DPX-14740

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**Staff Scientist, CDM/CSS-Dynamac JV**

**Signature:**   
**Date:** 03-11-2020

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**Reference/Submission No.:** {.....}

<b>Company Code</b>	{.....}	[For PMRA]
<b>Active Code</b>	{.....}	[For PMRA]
<b>Use Site Category</b>	{.....}	[For PMRA]
<b>EPA PC Code</b>	035505	

**Date Evaluation Completed:** 6Oct20

**CITATION:** Temple, D.L., *et al.* 2007. Diuron (DPX-14740) Technical: A Reproduction Study with the Mallard. Unpublished study performed by Wildlife International, Ltd., Easton, Maryland. Laboratory Project No. 112-584. Study sponsored by E.I. du Pont de Nemours and Company, Wilmington, Delaware. Study initiated April 11, 2007 and completed November 28, 2007.

*This Data Evaluation Record may have been altered by the Environmental Fate and Effects Division subsequent to signing by CDM/CSS-Dynamac JV personnel. The CDM/CSS-Dynamac Joint Venture role does not include establishing Agency policies.*

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## EXECUTIVE SUMMARY

The one-generation reproductive toxicity of diuron to 16 pairs per level of 27-week old mallard duck (*Anas platyrhynchos*) was assessed over *ca.* 20 weeks. Diuron technical was administered to the birds in the diet at nominal concentrations of 0 (control), 10, 33, 100, and 160 mg ai/kg diet. Reviewer-calculated mean-measured concentrations were <2.50 (<LOQ, control), 9.82, 32.9, 100, and 159 mg ai/kg diet.

The reviewer's analysis detected a significant reduction in eggs laid per pen and adult male and female body weight gain, with reductions noted at  $\geq 32.9$  mg ai/kg diet. Adult male body weight gain was also significantly reduced in a dose-dependent manner at the  $\geq 100$  mg ai/kg diet treatment levels. No other treatment related effects were observed on any adult, reproductive, or offspring endpoint. The NOAEC was determined to be 9.82 mg ai/kg diet, based on 23% decrease in eggs laid (per pen) and an 82% reduction in female body weight gain at 32.9 mg ai/kg diet.

This study is **scientifically sound** and is classified as **acceptable**.

### **Results Synopsis**

Test Organism Size/Age (mean Weight): 27 weeks old; 844 to 1308 g

NOAEC: 9.82 mg ai/kg diet

LOAEC: 32.9 mg ai/kg diet

Endpoint(s) affected: Eggs laid per pen, adult male and female body weight gain

Most sensitive endpoint(s): Eggs laid per pen and adult female body weight gain

## I. MATERIALS AND METHODS

**GUIDELINE(S) FOLLOWED:** The study protocol was based upon procedures outlined in U.S. EPA Pesticide Assessment Guidelines, §71-4 (1982), U.S. EPA Ecological Effects Test Guidelines OPPTS 850.2300 (1996), OECD Test Guideline 206 (1984), and ASTM Standard E1062-86 (1986).

Deviation(s) from OCSPP 850.2300 (2012), OCSPP 850.2000 (2012), and/or OECD 206 guidance included:

1. The physicochemical properties of the test material (e.g., solubility, vapor pressure, etc.) were not reported and are considered a prerequisite for an avian reproduction study under OECD 206 and OCSPP 850.2000 guidance.
2. The pre-test mortality rate was not reported. OCSPP guidance specifies that birds should not be used for testing if more than 3% of either sex of a population of birds becomes debilitated during the 2-week acclimation period.
3. OCSPP guidance states that test birds should be exposed (to the test substance) for at least 10 weeks prior to the onset of egg laying. In this study, birds were exposed for 9 weeks prior to the egg-laying phase.
4. According to the study author, the temperature in a brooder pen used to house offspring was inadvertently out of range on two occasions, but no raw data were provided.
5. One offspring from the 100 mg ai/kg diet treatment group could not be accounted for at 14-day old body weight measurement. Therefore, this offspring was assumed to have died and is not included as a 14-day old survivor.
6. On two occasions, the weekly feed consumption for one pen could not be determined over a seven-day period.

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The deviations did not impact the acceptability of this study.

## COMPLIANCE:

Signed and dated GLP, Quality Assurance, and No Data Confidentiality statements were provided. The study was conducted in accordance with the GLP Principles of the U.S. EPA (40 CFR, Part 160) with the following exceptions: routine water and food contaminant screening analyses. The contaminant screening analyses were performed using standard methods and a certified laboratory.

## A. MATERIALS:

### 1. Test Material:

Diuron technical (DPX-14740-245)

### Description:

Solid

### Lot No./Batch No.:

APR05GB250 (lot no.)

### Purity:

In-report purity of 98.4%; Certificate of analysis purity: 99.1% (expiration date of September 7, 2008)

### Stability of compound under test conditions:

The 7-day ambient stability of the test substance in the treated feed was verified under actual-use conditions during Week 1. Recoveries averaged 89 to 94% of initial-measured concentrations for all levels.

### Storage conditions of test chemicals:

Ambient conditions

### Physicochemical properties of Diuron.

Parameter	Values	Comments
Water solubility at 20°C	Not reported	
Vapor pressure	Not reported	
UV absorption	Not reported	
pKa	Not reported	
Kow	Not reported	

(OECD recommends water solubility, stability in water and light, pKa, Pow, and vapor pressure of test compound)

### 2. Test organism:

Table 1: Test organism

Parameter	Details	Remarks
		Criteria
Species (common and scientific names):	Mallard duck	

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Parameter	Details	Remarks
		Criteria
	( <i>Anas platyrhynchos</i> )	<i>Recommended species include a wild waterfowl species, preferably the mallard (<i>Anas platyrhynchos</i>) or an upland game species, preferably the Northern Bobwhite (<i>Anas platyrhynchos</i>)</i>
Age at Study Initiation:	27 weeks	<i>Birds approaching their first breeding season should be used.</i>
Body Weight: (mean and range)	Overall range: 844 to 1308 g  Group means: 1113 to 1119 g for males 1015 to 1026 g for females	Body weights were recorded at test initiation, at the end of Weeks 2, 4, 6, and 8, and at study termination (Week 20).  <i>Body weights should be recorded at test initiation and at biweekly intervals up to week eight or up to the onset of egg laying and at termination.</i>
Source:	Whistling Wings, Inc., Hanover, Illinois	Birds were phenotypically indistinguishable from wild stock. All birds were from the same hatch.  <i>All birds should be from the same source.</i>

## **B. STUDY DESIGN:**

### **1. Experimental Conditions**

- a. Range-finding study: In a 6-week pilot reproduction study (EAG Laboratories Project Number 112-583), groups of mallards (five pair per level) were fed diuron technical at dietary concentrations of 0 (control), 10, 33, 100, and 160 mg ai/kg diet. Mortality, clinical signs of toxicity, weight gain, feed consumption, and egg production were monitored, and results are summarized in the following table.

There was no treatment-related mortality, overt signs of toxicity, or treatment-related effects on feed consumption at any concentration tested. There were also no treatment-related effects on adult body weight at the 10, 33, or 100 mg ai/kg diet test levels. At the 160 mg ai/kg level, there was a reduction in hen body weight that was considered treatment related. In addition, it was reported that reductions in egg production were indicated at the 100 and 160 mg ai/kg diet levels. Test concentrations for the definitive study were based upon the pilot study results and in consultation with the Sponsor. Full results for the pilot study can be found in Appendix XV of the study report.

**Table 2: Pilot Study Summary of Results**



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Parameter	Control	10 mg ai/kg	33 mg ai/kg	100 mg ai/kg	160 mg ai/kg
Adult Parameters					
No. replicates	5	5	5	5	5
No. birds	10	10	10	10	10
Mortality	0	0	0	0	1 (♂)
Food consumption (g/bird/day) <sup>(a)</sup>	163	173	168	166	166
Weight change (g) of females (Weeks 0 to 6):	16	47	18	42	-100
Weight change (g) of males (Weeks 0 to 6):	95	104	89	-19	46
Eggs laid <sup>(b)</sup>	63	79	33	40	16
Eggs laid/hen/day <sup>(b)</sup>	0.30	0.38	0.16	0.19	0.08
Reproductive Performance <sup>(c)</sup>					
Eggs laid	20	29	3	16	3
Eggs cracked/damaged	0	0	0	0	0
Eggs set	20	29	3	15	3
Viable embryos	20	28	0	15	3
Live 3-week embryos	20	28	0	15	2
Hatchlings	18	22	0	7	0
14-Day old survivors	18	22	0	7	0

<sup>(a)</sup> Reviewer calculated.

<sup>(b)</sup> Based on 6 weeks of egg production during Weeks 1 through 6.

<sup>(c)</sup> Based on the last 14 days of eggs production during Weeks 5 and 6 (Days 29-42).

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b. Definitive Study:

**Table 3: Experimental Parameters**

Parameter	Details	Remarks
		Criteria
<p>Acclimation period:</p> <p>Conditions (same as test or not):</p> <p>Feeding:</p> <p>Health (any mortality observed):</p>	<p>2 weeks</p> <p>Similar to test (<math>\leq 8</math>-hours of light per day, fed same basal diet as test)</p> <p>Adult birds were fed a diet formulated by Cargill Animal Nutrition (Shippensburg, Pennsylvania) <i>ad libitum</i>, and supplied with public water.</p> <p>Pre-test mortality was not reported. Birds that did not appear healthy or were outside the weight range were excluded from the study.</p>	<p>Diets were supplemented with limestone, which raised the calcium level to 3% for breeding.</p> <p>Offspring were fed basal ration without the addition of test substance or limestone.</p> <p><i>Recommended observation period includes a 2-3 week health observation period prior to selection of birds for treatment. Generally, birds should be healthy without excess mortality. Feeding should be <u>ad libitum</u>, and sickness, injuries or mortality should be noted.</i></p>
<p><u>Test duration</u></p> <p>Pre-laying exposure:</p> <p>Egg-laying exposure:</p> <p>Withdrawal period, if used:</p>	<p>9 weeks</p> <p>11 weeks</p> <p>---</p>	<p><u><b>Recommended pre-laying exposure duration:</b></u> At least 10 weeks prior to the onset of egg-laying.</p> <p><u><b>Recommended exposure duration with egg-laying:</b></u> At least 10 weeks.</p> <p><u><b>Recommended withdrawal period:</b></u> If reduced reproduction is evident, a withdrawal period of up to 3 weeks should be added to the test phase.</p>

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Parameter	Details	Remarks
		Criteria
<u>Pen (for parental and offspring)</u> Size:   Construction materials:   Number:	Parental: 75 x 90 cm, height of 45 cm Offspring: 62 x 92 x 25.5 cm high  Parental: Vinyl-coated wire mesh. Offspring: Vinyl-coated wire mesh  16 parental pens/treatment level	<u>Pens</u> <i>Pens should have adequate room and be arranged to prevent cross-contamination.</i> <u>Materials</u> <i>Recommended materials include nontoxic material and nonbinding material, such as galvanized steel.</i> <u>Number</u> <i>At least 5 replicate pens should be used for mallards housed in groups of 7. For other arrangements, at least 12 pens should be used, but considerably more may be used if birds are kept in pairs. Chicks should be housed according to parental grouping.</i>
Number of birds per pen (male: female)	2 birds/pen (1 male:1 female)	<i>One male and one female per pen should be used. For quail, one male and two females should be used. For ducks, two males and five females should be used.</i>
<u>Number of pens per group/treatment</u> Negative control: Solvent control: Treated:	16 pens --- 16 pens/treatment	<i>At least 12-16 pens should be used, but considerably more if birds are kept in pairs.</i>

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Parameter	Details	Remarks
		Criteria
<u>Test concentrations (mg ai/kg diet)</u> Nominal:  Measured:	0 (negative control), 10, 33, 100, and 160 mg ai/kg diet  <2.50 (<LOQ, control), 9.82, 32.9, 100, and 159 mg ai/kg diet*  *reviewer-calculated	<i>Recommended test concentrations include at least two concentrations other than the control; three or more will provide a better statistical analysis. The highest test concentrations should show a significant effect or be at or above the actual or expected field residue level.</i>
Maximum labeled field residue anticipated and source of information:	Not specified	<i>The highest test concentrations should show a significant effect or be at or above the actual or expected field residue level. The source (i.e., maximum label rate in lb ai/A and ppm), label registration no., label date, and site should be cited]</i>
<u>Solvent/vehicle, if used</u> Type: Amount:	N/A	<i>Recommended solvents include corn oil or other appropriate vehicle not more than 2% of diet by weight</i>
Was detailed description and nutrient analysis of the basal diet provided? (Yes/No)	Yes	<i>A commercial breeder feed or an equivalent that is appropriate for the test species is recommended.</i>

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Parameter	Details	Remarks
		Criteria
Preparation of test diet	<p>Test diets were prepared by mixing diuron into a premix that was used for weekly preparation of the final diet. Premixes were prepared every 3 to 4 weeks from April 12 to August 20, 2007.</p> <p>If not used immediately for preparation of final diet, portions of the premixes were placed in plastic bags and stored frozen until needed.</p> <p>Once weekly, the appropriate premix was combined with additional basal ration and limestone and mixed for 20 minutes in a Patterson-Kelley® Twin Shell Blender.</p>	<p>Test diets were presented to the birds on Friday of each week.</p> <p><i>A premixed diet containing the test substance should be mechanically mixed with basal diet. If an evaporative vehicle is used, it should be completely evaporated prior to feeding.</i></p>
Indicate whether stability and homogeneity of test material in diet determined (Yes/No)	Yes	See Reviewer's Comments section.
Were concentrations in diet verified by chemical analysis?	Yes	See Reviewer's Comments section.
Did chemical analysis confirm that diet was stable?	Yes	See Reviewer's Comments section.
Homogeneous?	Yes	
Feeding and husbandry	Feeding and husbandry conditions appeared to be adequate, given guideline recommendations.	

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Parameter	Details	Remarks
		Criteria
<u>Test conditions (pre-laying)</u> Temperature: Relative humidity:  Photoperiod:	$22.3 \pm 0.9^{\circ}\text{C}$ $75.0 \pm 9.0\%$  $\leq 8$ hr light/day through Week 9 and 17 hr light/day thereafter  Illumination was provided by fluorescent lights that closely approximated the color spectrum of noonday sunlight. During the study, the birds received a mean light intensity of <i>ca.</i> 182 lux ( <i>ca.</i> 17 ft. candles).	Temperature and relative humidity ranges were for the entire experimental period.  The air handling system was designed to vent up to 15 room air volumes every hour and replace them with fresh air.  <i>Recommended temperature: about 21°C (70°F)</i> <i>Recommended relative humidity: about 55%</i> <i>Recommended lighting</i> <i>First 8 weeks: 7 h per day.</i> <i>Thereafter: 16-17 h per day.</i> <i>At least 6 foot-candles are recommended at bird level.</i>
<b>Egg Collection and Incubation</b>		
<u>Egg collection and storage</u> Collection interval: Storage temperature: Storage humidity:	Daily $14.8 \pm 0.7^{\circ}\text{C}$ $81 \pm 2\%$	<i>Eggs should be collected daily; recommended egg storage temperature is approximately 16°C (61°F); recommended humidity is approximately 65%. Recommended collection interval: daily</i>
Were eggs candled for cracks prior to setting for incubation?	Yes	<i>Eggs should be candled on day 0</i>
Were eggs set weekly?	Yes	Eggs to be incubated were washed in a commercial egg washer with a chlorine-based detergent to reduce the possibility of pathogen contamination.
When candling was done for fertility	Eggs were candled again on Days 14 (embryo viability) and 21 (embryo survival).	<i>Quail: approx. day 11</i> <i>Ducks: approx. day 14</i>
When the eggs were transferred to the hatcher	Day 24	<i>Bobwhite: usually day 21</i> <i>Mallard: usually day 23</i>

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Parameter	Details	Remarks
		Criteria
<u>Hatching conditions</u> Temperature:  Humidity:  Photoperiod:	Hatcher: $37.3 \pm 0.0^{\circ}\text{C}$ Brooder: <i>Ca.</i> $38^{\circ}\text{C}$ until 5-7 days post-hatch, then <i>ca.</i> $29^{\circ}\text{C}$ Room: $26.2 \pm 1.1^{\circ}\text{C}$  Hatcher: $55.0 \pm 0.0\%$ Brooder: not reported Room: $72.6 \pm 5.8\%$  16 hours light/day	  <i>Recommended temperature is <math>39^{\circ}\text{C}</math> (<math>102^{\circ}\text{F}</math>)</i> <i>Recommended humidity is 70%</i>
Day the hatched eggs were removed and counted	Days 27 or 28	  <i>Eggs for Bobwhite should be removed on day 24; for mallard on day 27</i>
Were eggshells washed and dried for at least 48 hours before measuring?	Yes	
<u>Egg shell thickness</u> No. of eggs used:  Intervals:  Mode of measurement:	One egg was collected from each odd-numbered pen during odd-numbered weeks and one egg was collected from each even-numbered pen during even-numbered weeks, for eggshell measurements.  Weekly  Five points around the girth of the egg were measured to the nearest 0.002 mm using a micrometer.	  <i>Newly hatched eggs should be collected at least once every two weeks. Thickness of the shell plus membrane should be measured to the nearest 0.01 mm with 3 - 4 measurements per shell.</i>
Reference chemical, if used	None used	

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## **2. Observations:**

**Table 4: Observations**

Parameter	Details	Remarks
<b>Parameters measured</b>		
<u>Parental</u> (mortality, body weight, mean feed consumption)	- mortality - signs of toxicity - body weight - feed consumption - necropsy	Necropsies were performed on all adult birds.
<u>Egg collection and subsequent development</u> (no. of eggs laid, no. of eggs cracked, shell thickness, no. of eggs set, no. of viable embryos, no. of live 3 week embryos, no. hatched, no. of 14-day survivors, average weight of 14-d old survivors, mortality, gross pathology, others)	- eggs laid - eggs cracked - egg fertility - egg shell thickness - eggs set - viable 14-day embryos - live 3-week embryos - hatchlings - hatchling body weight - 14-day-old survivors - 14-day-old survivor body weight	<i>Recommended endpoints measured include:</i> <ul style="list-style-type: none"> <li>• Eggs laid/pen</li> <li>• Eggs cracked/pen</li> <li>• Eggs set/pen</li> <li>• Viable embryos/pen</li> <li>• Live 3-week embryos/pen</li> <li>• Normal hatchlings/pen</li> <li>• 14-day-old survivors/pen</li> <li>• 14-day-old survivors/pen</li> <li>• Weights of 14-day-old survivors (mean per pen)</li> <li>• Egg shell thickness</li> <li>• Food consumption (mean per pen)</li> <li>• Initial and final body weight (mean per pen)</li> </ul>
Indicate if the test material was regurgitated	Not reported	
Observation intervals (for various parameters)	Parental and offspring mortality and signs of toxicity were recorded daily. Parental body weights were recorded at test initiation, at the end of Weeks 2, 4, 6, 8, and at termination (Week 20). Offspring were weighed when removed from the hatcher and at 14 days. Parental feed consumption was measured weekly.	<i>Body weights and food consumption should be measured at least biweekly</i>
Were raw data included?	Yes	



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## II. RESULTS AND DISCUSSION:

### A. MORTALITY:

There were three total mortalities in this experiment. A single mortality in the nominal 33 mg ai/kg diet group was a female found dead during Week 19 without having exhibited prior clinical signs of toxicity. Findings at necropsy included a large mass in the left atrium, multiple fluid-filled cysts of the liver, lesions of egg yolk peritonitis, and a large mass (ca. 5.0 x 2.0 cm) on the right kidney. Two mortalities occurred in the 160 mg ai/kg diet group. One was a female that was found dead during Week 18 without having exhibited prior clinical signs of toxicity, and no apparent cause of death was discovered at necropsy. The second mortality in the group was a male found dead during Week 19. Effects observed prior to death included reduced reaction to external stimuli, loss of coordination, lower limb weakness, a ruffled appearance, and wing droop. Necropsy revealed emaciation, a poor feather coat, a small and pale spleen, a bile-stained gizzard, and autolysis in the respiratory and gastrointestinal tracts. Due to the nature of findings at necropsy, none of the mortalities were considered related to treatment.

No treatment-related finds were observed upon necropsy of surviving birds at study termination.

### B. REPRODUCTIVE AND OTHER ENDPOINTS:

Abnormal Effects/Behavior: No overt signs of toxicity were observed at any treatment level. Incidental observations included those associated with injuries and pen wear. In addition, one female in the control group suffered a prolapsed uterus that was successfully reduced during the study.

Food Consumption: No significant differences in food consumption were observed between the control group and the 10, 33, and 100 mg ai/kg diet treatment groups during the study. At the 160 mg ai/kg diet level, significant increases in feed consumption (due to wastage of the diet) were observed during Weeks 5, 6, 8, and 9 ( $p < 0.05$ ). Overall feed consumption averaged 163 g/bird/day for the control level, and 179, 167, 166, and 172 g/bird/day for the 10, 33, 100, and 160 mg ai/kg diet treatment levels, respectively, with estimated overall mean dietary doses of 0, 1.7, 5.1, 15.6, and 26.6 mg ai/kg/day, respectively.

Body Weight: No significant differences in body weight were observed between the control group and the 10, 33, and 100 mg ai/kg diet treatment groups during the study. The study authors reported that there was a slight reduction in weight gain among hens in the 33 and 100 mg ai/kg diet levels during the reproductive phase of the test, but it was not a significant effect. At the 160 mg ai/kg diet level, significant differences in body weight were indicated for male birds at Weeks 2, 4, and 6, and in female birds at test termination. For the 0 (control), 10, 33, 100, and 160 mg ai/kg diet levels, total changes in body weight averaged 77, 39, 43, 22, and 14 g for males, respectively, and 113, 97, 21, 27, and -34 g for females, respectively.

Reproductive Effects: There were no significant differences between the control and 10 mg ai/kg diet level for any reproductive endpoint. At the 33 mg ai/kg diet level, there were significant reductions in the numbers of hatchlings and 14-day old survivors as percentages of the maximum number of eggs set. It was reported these reductions were reflective of a slight reduction in egg production and a reduction in viable embryos of eggs set. At the 100 and 160 mg ai/kg diet levels, there were significant reductions in the number of eggs laid as a percentage of maximum eggs laid, and in the numbers of hatchlings and 14-day old survivors as percentages of the maximum number of eggs set. In addition, although not significant, there were reductions in eggshell thickness at the 100 and 160 mg ai/kg diet levels that may have been related to treatment.

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**Table 5: Reproductive and Other Parameters (nominal concentrations; study author-reported).**

Parameter	Control	10 mg ai/kg	33 mg ai/kg	100 mg ai/kg	160 mg ai/kg	NOAEC/ LOAEC
No. laying pairs	16	16	15	16	14	Not statistically assessed
Eggs laid	763	662	549	503	253	
Eggs laid/hen	48	41	37	31	18	
Eggs cracked	8	8	4	10	3	
Eggs set	672	587	481	428	214	
Viable embryos	579	519	400	335	184	
Live 3-week embryos	572	515	394	333	179	
Hatchlings	499	412	297	289	149	
14-day old hatchling survivors	497	407	294	285	148	
Eggs laid/hen/day <sup>(a)</sup>	0.62	0.54	0.48	0.41	0.23	
Eggs laid/maximum laid (%)	67	58	52	44*	26**	33 mg ai/kg 100 mg ai/kg
Eggs cracked/eggs laid (%)	1	1	1	2	1	160 mg ai/kg >160 mg ai/kg
Viable embryos/eggs set (%)	88	90	77	79	85	
Live 3-Week embryos/ viable embryos (%)	99	99	99	100	97	
Hatchlings/live 3-Week embryos (%)	87	77	79	84	82	
Hatchlings/maximum set (%)	48	40	31*	28*	16**	10 mg ai/kg 33 mg ai/kg

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Parameter	Control	10 mg ai/kg	33 mg ai/kg	100 mg ai/kg	160 mg ai/kg	NOAEC/ LOAEC
14-Day old survivors/hatchlings (%)	100	99	99	99	99	160 mg ai/kg >160 mg ai/kg
14-Day old survivors/maximum set (%)	48	39	30*	27*	16**	10 mg ai/kg 33 mg ai/kg
Shell thickness (mm ± SD)	0.381 ± 0.025	0.382 ± 0.028	0.384 ± 0.020	0.369 ± 0.024	0.363 ± 0.031	160 mg ai/kg >160 mg ai/kg
Hatchling weight (g ± SD)	35 ± 2	35 ± 2	36 ± 4	35 ± 3	34 ± 3	
14-day old survivors' weight (g ± SD)	294 ± 25	288 ± 27	293 ± 27	296 ± 26	290 ± 19	
Mean food consumption (g/bird/day ± SD) <sup>(b)</sup>	163	179	167	166	172	100 mg ai/kg 160 mg ai/kg
Weight (g ± SD) of parent females at test initiation:	1015	1020	1026	1021	1021	
at Week 8:	1052	1054	1042	1037	1006	
at test termination:	1128	1117	1051	1047	978**	
Weight (g ± SD) of parent males at test initiation:	1119	1114	1113	1119	1119	
at Week 8:	1172	1140	1133	1119	1098	
at test termination:	1196	1153	1160	1141	1132	

<sup>(a)</sup> Based on 77 days of egg production.

<sup>(b)</sup> Standard deviations were not reported.

\* Significantly different from the control at p<0.05.

\*\* Significantly different from the control at p<0.01.

## Data Evaluation Record on the Reproductive Effects of Diuron on Mallard (*Anas platyrhynchos*)

PMRA Submission Number {.....}

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### C. REPORTED STATISTICS:

The following variables were statistically analyzed: adult body weight, adult feed consumption, eggs laid of maximum laid (%), eggs cracked of eggs laid (%), viable embryos of eggs set (%), live 3-week embryos of viable embryos (%), hatchlings of 3-week embryos (%), 14-day old survivors of hatchlings (%), hatchlings of eggs set (%), 14-day old survivors of eggs set (%), hatchlings of maximum set (%), 14-day old survivors of maximum set (%), egg shell thickness, and offspring body weights. Results were reported in terms of nominal concentrations.

An analysis of variance (ANOVA) followed by Dunnett's Multiple Comparisons Test was used to compare the three treatment means with the control group mean and assess the statistical significance of the observed differences. Sample units were the individual pens within each experimental group, except adult body weights where the sample unit was the individual bird. Percentage data were examined following an arcsine square root transformation for reproductive parameters.

### D. VERIFICATION OF STATISTICAL RESULTS:

Statistical Method: The reviewer assessed the survival, body weight, food consumption, and reproduction endpoints using mean-measured concentrations in CETIS version 1.9.6.12 statistical software with backend database settings updated by EFED on 07/25/17. The eggs laid per pen, eggshell thickness, adult food consumption, and all weight endpoints were confirmed to be normally distributed and have equal variances using Shapiro-Wilk's and Bartlett's tests, respectively, and were therefore analyzed using Dunnett's and William's tests. The reproduction endpoints (based on eggs laid, eggs not cracked, eggs set, 14-day viable embryos, 21-day live embryos, hatched, and 14-day normal hatchlings) had non-normal distribution and unequal or equal variances using Shapiro-Wilk's and Bartlett's or Levene's tests, respectively, and were therefore analyzed using the Jonckheere-Terpstra Step-Down or Wilcoxon with Bonferroni Adjustment Test.

NOAEC: 9.82 mg ai/kg diet

LOAEC: 32.9 mg ai/kg diet

Endpoint(s) affected: Eggs laid per pen, adult male and female body weight gain

Most sensitive endpoint(s): Eggs laid per pen and adult female body weight gain

# **Data Evaluation Record on the Reproductive Effects of Diuron on Mallard (*Anas platyrhynchos*)**

PMRA Submission Number {.....}

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**Table 6: Reproductive and Other Parameters (mean-measured concentrations; reviewer-reported).**

Parameter	Control	9.82 mg ai/kg	32.9 mg ai/kg	100 mg ai/kg	159 mg ai/kg	NOAEC/ LOAEC
Eggs laid/pen	47.7	41.3	36.6*	31.4*	18.1*	9.82 mg ai/kg 32.9 mg ai/kg
Eggs not cracked/eggs laid (%)	98.9	98.8	99.3	98.4	98.7	159 mg ai/kg >159 mg ai/kg
Viable embryos/eggs set (%)	87.6	89.8	77.0	79.3	84.4	
Live embryos/eggs set (%)	86.7	88.7	76.0	78.9	81.5	
No. of hatchlings/eggs set (%)	75.4	68.0	58.7	66.3	65.8	
Hatchling survival/eggs set (%)	75.0	67.0	58.3	65.6	65.1	
Live embryos/viable embryos (%)	99.0	98.9	98.8	99.5	96.6	
No. of hatchlings/live embryos (%)	86.8	77.3	78.6	84.1	81.8	
Hatchling survival/no. of hatchlings (%)	99.5	98.5	99.4	99.0	99.0	
Eggshell thickness (mm)	0.380	0.382	0.384	0.369	0.363	
Hatchling weight (g)	35.3	34.7	36.4	35.2	33.7	
Survivor weight (g)	294	288	293	297	290	100 mg ai/kg 159 mg ai/kg
Mean food consumption (g/bird/day)	163	179	167	166	171	
Male weight gain (g)	76.6	39.3	43.2	21.9*	14.2*	9.82 mg ai/kg 32.9 mg ai/kg
Female weight gain (g)	113	97.4	20.8*	26.7*	-33.9*	

## Data Evaluation Record on the Reproductive Effects of Diuron on Mallard (*Anas platyrhynchos*)

PMRA Submission Number {.....}

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\*Statistically-significant from the negative control ( $p < 0.05$ ; William's Test)

### E. STUDY DEFICIENCIES:

No deficiencies noted.

### F. REVIEWER'S COMMENTS:

The study author's and reviewer's results were in general agreement for most endpoints when considering the differences between nominal values (used by the study author) and mean-measured values (used by the reviewer). However, the study author evaluated many reproduction endpoints based on the maximum eggs set or maximum eggs laid. This produced more conservative values than the reviewer's reproduction results for hatchling and survivor endpoints, based on eggs set or eggs laid. The study author determined a significant effect for adult male weight gain at only the highest test level, due to a reduction in weight at week 2, 4, and 6, while the reviewer's analysis of body weight gain detected significant dose-dependent reductions in adult males (at levels  $\geq 100$  mg ai/kg) and females (at levels  $\geq 32.9$  mg ai/kg). The reviewer notes that at the two lowest test concentrations, 9.82 mg ai/kg and 32.9 mg ai/kg, the mean adult male body weight gain was 39.31 g (48.7 % effect) and 43.3 g (43.6% effect), respectively, about half of what it was in the control (76.7 g), but it was not identified as significant by CETIS; high variability in male body weight in the two lowest test concentrations is noted as being a driver for the non-significant results. The study author did not analyze eggs laid/pen, which was the most sensitive reproductive endpoint in this experiment. The reviewer's results are reported in the Executive Summary and Conclusions sections of this DER.

Homogeneity, stability, and concentration verification samples were analyzed for diuron concentrations during the definitive study, and detailed results were included in the study report. For the homogeneity samples, the coefficients of variation were 3.75, 5.40, 1.55, and 2.91% for the nominal 10, 33, 100, and 160 mg ai/kg feed at Week 1 Day 0. Stability was determined from feed samples collected from all levels during Week 1 following ambient storage for 7 days. Mean recoveries ranged from 89 to 94% of Day-0 values. Test concentrations were verified during Weeks 2, 3, 4, 8, 12, 16, and 20; recoveries averaged 98, 101, 100, and 101% of nominal for the 10, 33, 100, and 160 mg ai/kg diets, respectively. The analytical recovery from the control samples confirmed absence of the test substance in the control diet. The reviewer calculated mean-measured concentrations using results from homogeneity, verification, and stability assessments.

Along with sample analyses, matrix blanks were prepared and analyzed to determine possible interferences, and matrix fortifications were prepared at 5.00 and 200 mg ai/kg diet to determine procedural recoveries. No interferences were observed at or above the lowest standard, and the method yielded mean procedural recoveries of 98 to 104%.

#### **The following conditions were met in accepting the validity of this study:**

- The mortality in the control group did not exceed 10 percent at the end of the test.
- The average number of 14-day old survivors per hen in the control group was greater than 14.
- The average egg shell thickness for the control group was greater than 0.340 mm.

## Data Evaluation Record on the Reproductive Effects of Diuron on Mallard (*Anas platyrhynchos*)

PMRA Submission Number {.....}

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### G. CONCLUSIONS:

This study **is scientifically sound]** and is classified as **acceptable**. The reviewer's analysis detected a significant reduction in eggs laid per pen (based on 23% decrease in eggs laid per pen at 32.9 mg ai/kg, relative to control), and reduction in adult female body weight (82% reduction in weight at 32.9 mg ai/kg) relative to control. Eggs laid per pen and adult female body weight gain were equally most sensitive, with reductions noted at  $\geq 32.9$  mg ai/kg diet ( $p < 0.05$ ; William's Test). No other treatment related effects were observed. The NOAEC was determined to be 9.82 mg ai/kg diet.

NOAEC: 9.82 mg ai/kg diet

LOAEC: 32.9 mg ai/kg diet

Endpoint(s) affected: Eggs laid per pen, adult male and female body weight gain

Most sensitive endpoint(s): Eggs laid per pen and adult female body weight gain

### III. REFERENCES:

No references were cited other than standard guidelines or methodologies.

# CETIS Summary Report

Report Date: 13 Apr-20 20:13 (p 1 of 8)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w
Sample ID: 12-3647-0466	Code: 035505 50308302	Project: Herbicide
Sample Date: 14 Apr-07	Material: Diuron	Source: E.I. du Pont de Nemours and Company
Receipt Date:	CAS (PC):	Station:
Sample Age: n/a	Client: CDM Smith	

035505 50308302 mean measured concentrations, record created by: J. Burns

### Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	TU	PM SD	S
02-1832-7942	01 Eggs Laid per Pen	Dunnett Multiple Comparison Test	32.9	100	57.36		23.9%	1
14-2302-8323	01 Eggs Laid per Pen	Williams Multiple Comparison Test	✓ 9.82	32.9	17.97		19.2%	1
05-0534-8647	02 Eggs Not Cracked per EL	Jonckheere-Terpstra Step-Down Test	159	>159	n/a		n/a	1
07-6872-2017	02 Eggs Not Cracked per EL	Wilcoxon/Bonferroni Adj Test	159	>159	n/a		2.02%	1
09-6007-4209	03 Viable Embryos per ES	Jonckheere-Terpstra Step-Down Test	159	>159	n/a		n/a	1
09-6310-0389	03 Viable Embryos per ES	Wilcoxon/Bonferroni Adj Test	159	>159	n/a		28.3%	1
20-1331-1920	04 Live Embryos per ES	Jonckheere-Terpstra Step-Down Test	159	>159	n/a		n/a	1
16-7874-5389	04 Live Embryos per ES	Wilcoxon/Bonferroni Adj Test	159	>159	n/a		28.2%	1
17-5198-5037	05 Hatchlings per ES	Jonckheere-Terpstra Step-Down Test	159	>159	n/a		n/a	1
13-5897-2566	05 Hatchlings per ES	Wilcoxon/Bonferroni Adj Test	159	>159	n/a		30.4%	1
14-3223-7439	06 14d Hatchlings per ES	Jonckheere-Terpstra Step-Down Test	159	>159	n/a		n/a	1
10-3925-2514	06 14d Hatchlings per ES	Wilcoxon/Bonferroni Adj Test	159	>159	n/a		30.4%	1
11-1249-5639	07 Live Embryos per VE	Jonckheere-Terpstra Step-Down Test	159	>159	n/a		n/a	1
10-5265-4501	07 Live Embryos per VE	Wilcoxon/Bonferroni Adj Test	159	>159	n/a		2.28%	1
00-9054-8551	08 Hatchlings per LE	Jonckheere-Terpstra Step-Down Test	159	>159	n/a		n/a	1
07-3290-3425	08 Hatchlings per LE	Wilcoxon/Bonferroni Adj Test	159	>159	n/a		16.6%	1
19-1824-8075	09 14d Hatchlings per NH	Jonckheere-Terpstra Step-Down Test	159	>159	n/a		n/a	1
04-1313-3205	09 14d Hatchlings per NH	Wilcoxon/Bonferroni Adj Test	159	>159	n/a		2.08%	1
00-5215-5733	10 Eggshell Thickness	Dunnett Multiple Comparison Test	159	>159	n/a		5.71%	1
15-9853-1600	10 Eggshell Thickness	Williams Multiple Comparison Test	159	>159	n/a		4.56%	1
18-0312-0676	11 Hatchling Weight	Dunnett Multiple Comparison Test	159	>159	n/a		6.94%	1
05-7659-6113	11 Hatchling Weight	Williams Multiple Comparison Test	159	>159	n/a		5.52%	1
14-8337-3075	12 14d Survivor Weight	Dunnett Multiple Comparison Test	159	>159	n/a		7.47%	1
02-5684-2714	12 14d Survivor Weight	Williams Multiple Comparison Test	159	>159	n/a		5.94%	1
06-9807-0361	13 Mean Food Consumption (	Dunnett Multiple Comparison Test	159	>159	n/a		15.4%	1
13-8240-1353	13 Mean Food Consumption (	Williams Multiple Comparison Test	159	>159	n/a		12.5%	1
11-9817-3040	14 Weight Gain MALE adult	Dunnett Multiple Comparison Test	159	>159	n/a		91.3%	1
10-6257-3751	14 Weight Gain MALE adult	Williams Multiple Comparison Test	32.9	100	57.36		73.4%	1
15-1952-8278	15 Weight Gain FEMALE adu	Dunnett Multiple Comparison Test	100	159	126.1		83.4%	1
00-4065-3141	15 Weight Gain FEMALE adu	Williams Multiple Comparison Test	✓ 9.82	32.9	17.97		67.0%	1



# CETIS Summary Report

Report Date: 13 Apr-20 20:13 (p 2 of 8)  
Test Code/ID: 035505 50308302 / 10-1201-6135

OCSPP 850.2300 Chronic Avian Reproduction

Wildlife International

## 01 Eggs Laid per Pen Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	47.69	40.22	55.15	23	71	3.503	14.01	29.38%	0.00%
9.82		16	41.38	34.08	48.67	19	67	3.422	13.69	33.08%	13.24%
32.9		15	36.6	26.68	46.52	1	60	4.626	17.92	48.95%	23.25%
100		16	31.44	25.51	37.36	13	51	2.781	11.12	35.38%	34.08%
159		14	18.07	10.42	25.73	0	44	3.543	13.26	73.36%	62.10%

## 02 Eggs Not Cracked per EL Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	0.9894	0.9800	0.9988	0.9500	1.0000	0.0044	0.0176	1.78%	0.00%
9.82		16	0.9878	0.9774	0.9981	0.9318	1.0000	0.0049	0.0195	1.97%	0.17%
32.9		15	0.9934	0.9860	1.0000	0.9524	1.0000	0.0035	0.0134	1.35%	-0.40%
100		16	0.9835	0.9683	0.9987	0.9000	1.0000	0.0071	0.0285	2.89%	0.60%
159		12	0.9873	0.9668	1.0000	0.8947	1.0000	0.0093	0.0322	3.26%	0.22%

## 03 Viable Embryos per ES Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	0.8761	0.7908	0.9614	0.4333	1.0000	0.0400	0.1601	18.28%	0.00%
9.82		16	0.8975	0.8097	0.9854	0.4898	1.0000	0.0412	0.1649	18.37%	-2.45%
32.9		15	0.7704	0.5570	0.9838	0.0000	1.0000	0.0995	0.3854	50.02%	12.07%
100		16	0.7929	0.6103	0.9755	0.0000	1.0000	0.0857	0.3427	43.22%	9.50%
159		12	0.8444	0.6556	1.0000	0.0000	1.0000	0.0858	0.2973	35.20%	3.61%

## 04 Live Embryos per ES Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	0.8673	0.7817	0.9529	0.4333	1.0000	0.0402	0.1607	18.53%	0.00%
9.82		16	0.8865	0.8006	0.9723	0.4898	1.0000	0.0403	0.1612	18.18%	-2.21%
32.9		15	0.7602	0.5494	0.9709	0.0000	1.0000	0.0983	0.3805	50.06%	12.35%
100		16	0.7889	0.6068	0.9710	0.0000	1.0000	0.0854	0.3417	43.31%	9.04%
159		12	0.8150	0.6315	0.9984	0.0000	1.0000	0.0833	0.2887	35.42%	6.03%

## 05 Hatchlings per ES Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	0.7542	0.6693	0.8391	0.4000	0.9211	0.0398	0.1593	21.13%	0.00%
9.82		16	0.6802	0.5595	0.8009	0.2174	0.9714	0.0566	0.2265	33.31%	9.81%
32.9		15	0.5872	0.4143	0.7601	0.0000	1.0000	0.0806	0.3122	53.16%	22.13%
100		16	0.6625	0.4932	0.8318	0.0000	1.0000	0.0794	0.3177	47.95%	12.15%
159		12	0.6583	0.4876	0.8291	0.0000	0.9565	0.0776	0.2687	40.82%	12.70%

## 06 14d Hatchlings per ES Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	0.7500	0.6660	0.8341	0.4000	0.9211	0.0394	0.1577	21.03%	0.00%
9.82		16	0.6704	0.5497	0.7911	0.2174	0.9714	0.0566	0.2266	33.79%	10.62%
32.9		15	0.5829	0.4120	0.7538	0.0000	1.0000	0.0797	0.3086	52.94%	22.28%
100		16	0.6563	0.4880	0.8245	0.0000	1.0000	0.0789	0.3157	48.10%	12.50%
159		12	0.6514	0.4816	0.8212	0.0000	0.9565	0.0771	0.2672	41.02%	13.15%

## 07 Live Embryos per VE Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	0.9898	0.9804	0.9992	0.9412	1.0000	0.0044	0.0177	1.79%	0.00%
9.82		16	0.9887	0.9744	1.0000	0.9130	1.0000	0.0067	0.0267	2.70%	0.11%
32.9		13	0.9876	0.9757	0.9996	0.9333	1.0000	0.0055	0.0198	2.00%	0.22%
100		14	0.9949	0.9873	1.0000	0.9615	1.0000	0.0035	0.0131	1.31%	-0.51%
159		11	0.9659	0.9370	0.9948	0.8889	1.0000	0.0130	0.0431	4.46%	2.41%

# CETIS Summary Report

Report Date: 13 Apr-20 20:13 (p 3 of 8)  
Test Code/ID: 035505 50308302 / 10-1201-6135

OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

## 08 Hatchlings per LE Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	0.8680	0.8250	0.9111	0.6552	1.0000	0.0202	0.0807	9.30%	0.00%
9.82		16	0.7726	0.6591	0.8861	0.2381	1.0000	0.0532	0.2130	27.57%	11.00%
32.9		13	0.7866	0.7069	0.8663	0.6316	1.0000	0.0366	0.1319	16.77%	9.38%
100		14	0.8406	0.7492	0.9320	0.4545	1.0000	0.0423	0.1583	18.83%	3.16%
159		11	0.8175	0.6899	0.9452	0.5000	1.0000	0.0573	0.1900	23.24%	5.82%

## 09 14d Hatchlings per NH Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	0.9950	0.9871	1.0000	0.9444	1.0000	0.0037	0.0148	1.49%	0.00%
9.82		16	0.9853	0.9701	1.0000	0.9130	1.0000	0.0071	0.0285	2.89%	0.98%
32.9		13	0.9940	0.9870	1.0000	0.9714	1.0000	0.0032	0.0115	1.16%	0.10%
100		14	0.9904	0.9778	1.0000	0.9259	1.0000	0.0058	0.0217	2.19%	0.47%
159		11	0.9899	0.9674	1.0000	0.8889	1.0000	0.0101	0.0335	3.38%	0.51%

## 10 Eggshell Thickness Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	0.3804	0.3669	0.394	0.34	0.448	0.006365	0.02546	6.69%	0.00%
9.82		16	0.3822	0.3671	0.3973	0.326	0.435	0.007071	0.02828	7.40%	-0.46%
32.9		14	0.3839	0.3724	0.3953	0.35	0.424	0.005317	0.0199	5.18%	-0.90%
100		16	0.3692	0.3566	0.3818	0.326	0.424	0.005896	0.02359	6.39%	2.96%
159		12	0.3634	0.3438	0.3831	0.312	0.413	0.008923	0.03091	8.51%	4.47%

## 11 Hatchling Weight Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	35.25	34.25	36.25	33	40	0.4699	1.88	5.33%	0.00%
9.82		16	34.69	33.57	35.8	31	38	0.5222	2.089	6.02%	1.60%
32.9		13	36.38	33.81	38.95	28	44	1.18	4.253	11.69%	-3.22%
100		14	35.21	33.63	36.8	30	40	0.7351	2.751	7.81%	0.10%
159		11	33.73	31.8	35.65	29	40	0.8644	2.867	8.50%	4.32%

## 12 14d Survivor Weight Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	293.6	280.2	306.9	245	334	6.26	25.04	8.53%	0.00%
9.82		16	288.1	273.6	302.6	245	328	6.81	27.24	9.45%	1.85%
32.9		13	293.1	276.8	309.4	241	337	7.491	27.01	9.22%	0.17%
100		14	296.5	281.5	311.5	235	339	6.946	25.99	8.77%	-1.00%
159		11	290.2	277.7	302.7	257	319	5.597	18.56	6.40%	1.15%

## 13 Mean Food Consumption (Adult) Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	163.4	144.6	182.3	112	238	8.844	35.38	21.65%	0.00%
9.82		16	179.1	162.3	195.8	141	241	7.847	31.39	17.53%	-9.56%
32.9		16	166.9	148.7	185.1	109	244	8.543	34.17	20.47%	-2.14%
100		16	165.9	151.4	180.5	120	214	6.809	27.24	16.41%	-1.53%
159		16	171.1	153.2	189	112	254	8.399	33.6	19.64%	-4.67%

## 14 Weight Gain MALE adult Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	76.56	45.26	107.9	-23	181	14.69	58.75	76.74%	0.00%
9.82		16	39.31	-19.61	98.23	-171	222	27.64	110.6	281.28%	48.65%
32.9		15	43.2	2.625	83.77	-69	149	18.92	73.27	169.60%	43.58%
100		16	21.94	-18.73	62.61	-86	206	19.08	76.33	347.93%	71.35%
159		14	14.21	-46.53	74.96	-157	180	28.12	105.2	740.13%	81.43%

# CETIS Summary Report

Report Date: 13 Apr-20 20:13 (p 4 of 8)  
Test Code/ID: 035505 50308302 / 10-1201-6135

OCSPP 850.2300 Chronic Avian Reproduction

Wildlife International

## 15 Weight Gain FEMALE adult Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	16	112.6	52.38	172.9	-41	281	28.26	113.1	100.38%	0.00%
9.82		16	97.38	24.5	170.2	-157	398	34.19	136.8	140.45%	13.54%
32.9		15	20.8	-50.72	92.32	-245	240	33.35	129.2	620.94%	81.53%
100		16	26.69	-31.37	84.75	-143	298	27.24	109	408.28%	76.30%
159		14	-33.93	-83.23	15.37	-145	148	22.82	85.38	-251.66%	130.13%

# CETIS Summary Report

Report Date: 13 Apr-20 20:13 (p 5 of 8)  
Test Code/ID: 035505 50308302 / 10-1201-6135

OCSPP 850.2300 Chronic Avian Reproduction Wildlife International

01 Eggs Laid per Pen Detail											
Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	69	43	45	54	47	41	71	28	53	51
		60	60	43	23	26	49				
9.82		54	38	63	50	67	25	35	24	19	38
		43	30	37	54	44	41				
32.9		57	49	1	53	12	20	21	25	35	45
		39	31	44		60	57				
100		51	35	50	25	28	33	14	13	31	40
		36	35	23	42	23	24				
159		0	33	21	12	19	7	26		34	0
		14		20	44	3	20				

02 Eggs Not Cracked per EL Detail											
Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	0.9574	0.9756	1.0000	0.9643	1.0000	1.0000
		0.9833	0.9500	1.0000	1.0000	1.0000	1.0000				
9.82		1.0000	0.9737	1.0000	1.0000	0.9851	1.0000	0.9714	1.0000	1.0000	1.0000
		1.0000	0.9667	1.0000	1.0000	0.9318	0.9756				
32.9		0.9825	1.0000	1.0000	1.0000	1.0000	1.0000	0.9524	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000		0.9833	0.9825				
100		0.9804	1.0000	0.9800	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9000
		1.0000	0.9429	1.0000	0.9762	0.9565	1.0000				
159			1.0000	0.9524	1.0000	0.8947	1.0000	1.0000		1.0000	
		1.0000		1.0000	1.0000	1.0000	1.0000				

03 Viable Embryos per ES Detail											
Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	0.4333	0.9487	0.9762	0.9375	0.9211	1.0000	0.8615	1.0000	0.7234	1.0000
		1.0000	0.9400	0.9250	0.7500	0.9565	0.6444				
9.82		0.9600	0.9032	0.8070	0.9778	1.0000	1.0000	0.7742	1.0000	0.9375	1.0000
		1.0000	1.0000	0.9706	0.4898	0.5405	1.0000				
32.9		0.9808	0.9111	1.0000	0.9583	0.0909	0.8824	0.0000	0.9474	0.9677	1.0000
		0.0000	1.0000	0.9500		0.8864	0.9808				
100		0.9773	0.9355	0.7727	1.0000	0.8750	0.0000	0.4167	1.0000	0.9286	1.0000
		0.0000	1.0000	1.0000	0.8333	0.9474	1.0000				
159			0.9667	0.8667	0.9000	1.0000	0.0000	1.0000		1.0000	
		1.0000		0.9375	0.5250	1.0000	0.9375				

04 Live Embryos per ES Detail											
Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	0.4333	0.9487	0.9762	0.9375	0.9211	0.9714	0.8308	1.0000	0.6809	1.0000
		0.9811	0.9200	0.9250	0.7500	0.9565	0.6444				
9.82		0.9600	0.9032	0.8070	0.9778	1.0000	0.9130	0.7742	1.0000	0.8750	1.0000
		1.0000	1.0000	0.9706	0.4898	0.5405	0.9722				
32.9		0.9615	0.8889	1.0000	0.9583	0.0909	0.8824	0.0000	0.9474	0.9032	0.9756
		0.0000	1.0000	0.9500		0.8636	0.9808				
100		0.9773	0.9355	0.7727	1.0000	0.8750	0.0000	0.4167	1.0000	0.8929	1.0000
		0.0000	1.0000	1.0000	0.8056	0.9474	1.0000				
159			0.9667	0.8000	0.8000	0.9286	0.0000	1.0000		0.9677	
		0.9167		0.9375	0.5250	1.0000	0.9375				

# CETIS Summary Report

Report Date: 13 Apr-20 20:13 (p 6 of 8)  
Test Code/ID: 035505 50308302 / 10-1201-6135

OCSPP 850.2300 Chronic Avian Reproduction Wildlife International

05 Hatchlings per ES Detail											
Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	0.4000	0.8462	0.8095	0.8542	0.9211	0.8857	0.8154	0.8182	0.5745	0.8889
		0.7547	0.8000	0.8000	0.6500	0.8261	0.4222				
9.82		0.9200	0.7419	0.6491	0.4667	0.9344	0.2174	0.6129	0.8095	0.5000	0.9714
		0.9487	0.6364	0.9412	0.4898	0.4324	0.6111				
32.9		0.6731	0.6444	1.0000	0.9167	0.0909	0.6471	0.0000	0.6842	0.6452	0.9024
		0.0000	0.7143	0.6000		0.6364	0.6538				
100		0.9545	0.7097	0.6136	1.0000	0.8333	0.0000	0.3333	0.4545	0.8214	0.8710
		0.0000	0.9630	0.5789	0.7778	0.7895	0.9000				
159			0.7667	0.8000	0.5000	0.9286	0.0000	0.9565		0.5484	
		0.7500		0.9375	0.5250	0.5000	0.6875				

06 14d Hatchlings per ES Detail											
Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	0.4000	0.8462	0.8095	0.8333	0.9211	0.8857	0.8154	0.7727	0.5745	0.8889
		0.7547	0.8000	0.8000	0.6500	0.8261	0.4222				
9.82		0.9200	0.6774	0.6316	0.4667	0.9344	0.2174	0.6129	0.7619	0.5000	0.9714
		0.9487	0.6364	0.9412	0.4898	0.4054	0.6111				
32.9		0.6538	0.6444	1.0000	0.8958	0.0909	0.6471	0.0000	0.6842	0.6452	0.8780
		0.0000	0.7143	0.6000		0.6364	0.6538				
100		0.9318	0.7097	0.5682	1.0000	0.8333	0.0000	0.3333	0.4545	0.8214	0.8387
		0.0000	0.9630	0.5789	0.7778	0.7895	0.9000				
159			0.7667	0.8000	0.5000	0.9286	0.0000	0.9565		0.5484	
		0.6667		0.9375	0.5250	0.5000	0.6875				

07 Live Embryos per VE Detail											
Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	0.9714	0.9643	1.0000	0.9412	1.0000
		0.9811	0.9787	1.0000	1.0000	1.0000	1.0000				
9.82		1.0000	1.0000	1.0000	1.0000	1.0000	0.9130	1.0000	1.0000	0.9333	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	0.9722				
32.9		0.9804	0.9756	1.0000	1.0000	1.0000	1.0000		1.0000	0.9333	0.9756
			1.0000	1.0000		0.9744	1.0000				
100		1.0000	1.0000	1.0000	1.0000	1.0000		1.0000	1.0000	0.9615	1.0000
			1.0000	1.0000	0.9667	1.0000	1.0000				
159			1.0000	0.9231	0.8889	0.9286		1.0000		0.9677	
		0.9167		1.0000	1.0000	1.0000	1.0000				

08 Hatchlings per LE Detail											
Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	0.9231	0.8919	0.8293	0.9111	1.0000	0.9118	0.9815	0.8182	0.8438	0.8889
		0.7692	0.8696	0.8649	0.8667	0.8636	0.6552				
9.82		0.9583	0.8214	0.8043	0.4773	0.9344	0.2381	0.7917	0.8095	0.5714	0.9714
		0.9487	0.6364	0.9697	1.0000	0.8000	0.6286				
32.9		0.7000	0.7250	1.0000	0.9565	1.0000	0.7333		0.7222	0.7143	0.9250
			0.7143	0.6316		0.7368	0.6667				
100		0.9767	0.7586	0.7941	1.0000	0.9524		0.8000	0.4545	0.9200	0.8710
			0.9630	0.5789	0.9655	0.8333	0.9000				
159			0.7931	1.0000	0.6250	1.0000		0.9565		0.5667	
		0.8182		1.0000	1.0000	0.5000	0.7333				

# CETIS Summary Report

Report Date: 13 Apr-20 20:14 (p 7 of 8)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSPP 850.2300 Chronic Avian Reproduction

Wildlife International

### 09 14d Hatchlings per NH Detail

Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	0.9756	1.0000	1.0000	1.0000	0.9444	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000				
9.82		1.0000	0.9130	0.9730	1.0000	1.0000	1.0000	1.0000	0.9412	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	0.9375	1.0000				
32.9		0.9714	1.0000	1.0000	0.9773	1.0000	1.0000		1.0000	1.0000	0.9730
			1.0000	1.0000		1.0000	1.0000				
100		0.9762	1.0000	0.9259	1.0000	1.0000		1.0000	1.0000	1.0000	0.9630
			1.0000	1.0000	1.0000	1.0000	1.0000				
159			1.0000	1.0000	1.0000	1.0000		1.0000		1.0000	
		0.8889		1.0000	1.0000	1.0000	1.0000				

### 10 Eggshell Thickness Detail

Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	0.448	0.361	0.37	0.379	0.398	0.363	0.406	0.34	0.383	0.372
		0.357	0.364	0.374	0.384	0.379	0.409				
9.82		0.429	0.326	0.359	0.408	0.379	0.435	0.4	0.345	0.388	0.393
		0.361	0.374	0.366	0.386	0.384	0.382				
32.9		0.424	0.406		0.361	0.389	0.377	0.35	0.356	0.376	0.385
		0.378	0.394	0.395		0.385	0.398				
100		0.362	0.363	0.399	0.365	0.357	0.375	0.353	0.351	0.424	0.384
		0.326	0.34	0.382	0.39	0.372	0.364				
159			0.366	0.329	0.378	0.312	0.331	0.411		0.376	
		0.365		0.371	0.413	0.342	0.367				

### 11 Hatchling Weight Detail

Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	36	34	40	35	36	34	35	33	33	35
		34	34	36	34	38	37				
9.82		36	32	37	38	34	35	35	36	37	36
		34	34	32	32	31	36				
32.9		37	33	44	39	42	33		37	33	28
			40	36		35	36				
100		36	34	38	34	31		35	35	36	38
			34	40	38	34	30				
159			33	35	40	33		34		36	
		35		29	31	32	33				

### 12 14d Survivor Weight Detail

Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	306	276	299	302	267	279	316	326	277	297
		245	263	334	280	320	310				
9.82		328	266	281	320	299	246	282	298	295	297
		266	323	262	326	245	276				
32.9		297	302	316	320	337	261		269	274	241
			316	299		279	299				
100		292	288	312	316	285		268	324	303	339
			310	295	308	235	276				
159			301	309	276	269		319		257	
		277		289	295	299	301				

# CETIS Summary Report

Report Date: 13 Apr-20 20:14 (p 8 of 8)  
 Test Code/ID: 035505 50308302 / 10-1201-6135

OCSP 850.2300 Chronic Avian Reproduction Wildlife International

13 Mean Food Consumption (Adult) Detail											
Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	120	151	162	136	136	157	151	112	219	200
		186	199	151	145	152	238				
9.82		153	185	172	156	159	141	189	235	151	182
		180	200	154	241	220	147				
32.9		197	169	109	133	166	126	169	244	152	170
		164	137	220	165	189	161				
100		134	150	208	126	201	161	214	177	173	151
		174	156	172	159	179	120				
159		164	112	170	207	158	123	178	189	140	254
		164	144	182	183	184	185				

14 Weight Gain MALE adult Detail											
Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	94	38	72	21	70	120	40	181	42	5
		139	112	-23	47	89	178				
9.82		-66	-58	121	-171	53	222	-148	20	44	54
		9	175	136	8	143	87				
32.9		88	92	-26	-69	2	85	80	-47	-20	127
		-41	128	94		149	6				
100		45	-3	16	-8	-86	144	-60	-24	32	4
		45	206	55	-14	76	-77				
159		6	-157	161	59	-26	123	99		-27	-32
		180		-44	-130	-90	77				

15 Weight Gain FEMALE adult Detail											
Conc-mg ai/kg	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	124	106	280	207	0	30	256	-3	128	3
		148	241	281	-41	56	-14				
9.82		398	217	152	131	222	48	86	176	13	40
		80	-157	20	126	-151	157				
32.9		124	240	-245	178	15	-103	46	-201	-3	64
		65	45	82		-47	52				
100		298	68	-21	-28	133	-33	-11	-28	-143	-54
		63	87	14	181	-84	-15				
159		6	-98	148	-37	-12	-106	17		-136	-107
		-12		-3	-145	-82	92				

# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 1 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 02-1832-7942	Endpoint: 01 Eggs Laid per Pen	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:00	Analysis: Parametric-Control vs Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	32.9	100	57.36		23.90%

### Dunnett Multiple Comparison Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	1.263	2.203	11.01	30	CDF	0.2714	Non-Significant Effect
		32.9	2.182	2.203	11.19	29	CDF	0.0523	Non-Significant Effect
		100*	3.251	2.203	11.01	30	CDF	0.0032	Significant Effect
		159*	5.724	2.203	11.39	28	CDF	1.3E-06	Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	7463.44	1865.86	4	9.336	3.9E-06	Significant Effect
Error	14389.7	199.856	72			
Total	21853.1		76			

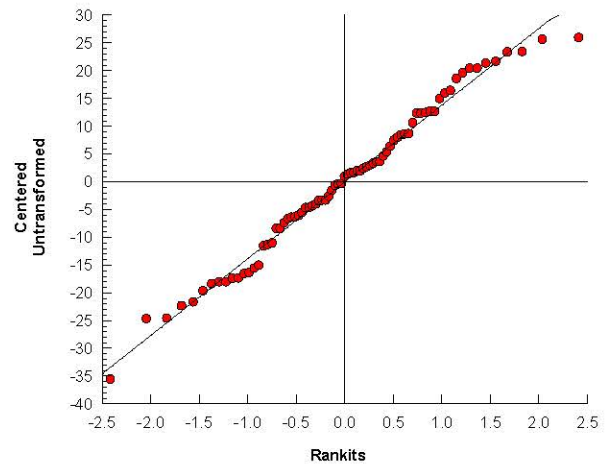
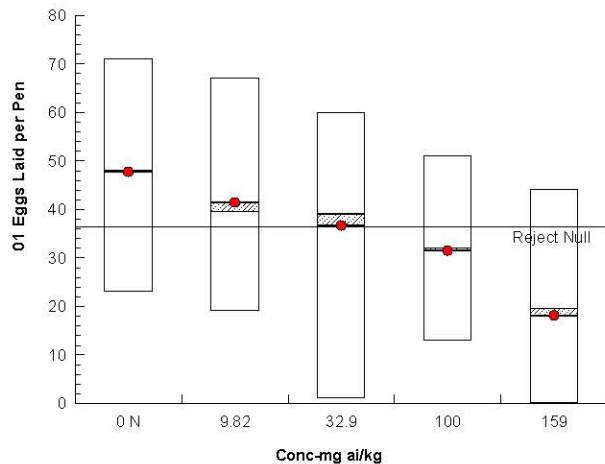
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	3.372	13.28	0.4975	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9841	0.9564	0.4496	Normal Distribution

### 01 Eggs Laid per Pen Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	47.69	40.22	55.15	48	23	71	3.503	29.38%	0.00%
9.82		16	41.38	34.08	48.67	39.5	19	67	3.422	33.08%	13.24%
32.9		15	36.6	26.68	46.52	39	1	60	4.626	48.95%	23.25%
100		16	31.44	25.51	37.36	32	13	51	2.781	35.38%	34.08%
159		14	18.07	10.42	25.73	19.5	0	44	3.543	73.36%	62.10%

### Graphics





# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 2 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

OCSP 850.2300 Chronic Avian Reproduction					Wildlife International	
Analysis ID:	14-2302-8323	Endpoint:	01 Eggs Laid per Pen	CETIS Version:	CETISv1.9.6	
Analyzed:	13 Apr-20 20:04	Analysis:	Parametric-Control vs Ord.Treatments	Status Level:	1	
Batch ID:	03-8385-5999	Test Type:	Chronic Avian Repro	Analyst:		
Start Date:	14 Apr-07	Protocol:	OCSP 850.2300 Chronic Bird	Diluent:		
Ending Date:	11 Oct-07	Species:	Anas Platyrhynchos	Brine:		
Test Length:	180d 0h	Taxon:		Source:	Whistling Wings, Inc.	Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	9.82	32.9	17.97		19.20%

## Williams Multiple Comparison Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	1.263	1.667	8.33	30	CDF	>0.05	Non-Significant Effect
		32.9*	2.182	1.739	8.836	29	CDF	<0.05	Significant Effect
		100*	3.251	1.765	8.82	30	CDF	<0.05	Significant Effect
		159*	5.724	1.769	9.154	28	CDF	<0.05	Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	7463.44	1865.86	4	9.336	3.9E-06	Significant Effect
Error	14389.7	199.856	72			
Total	21853.1		76			

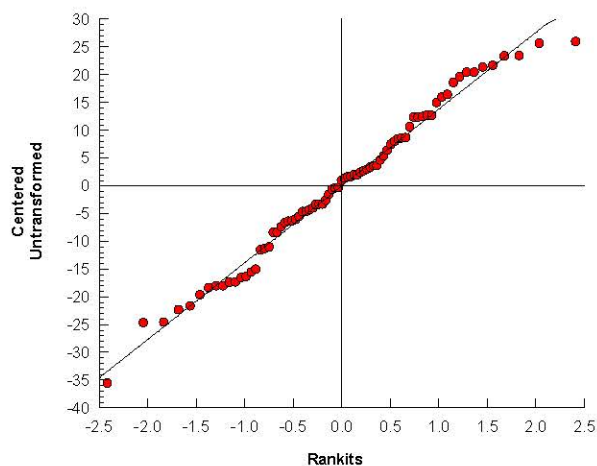
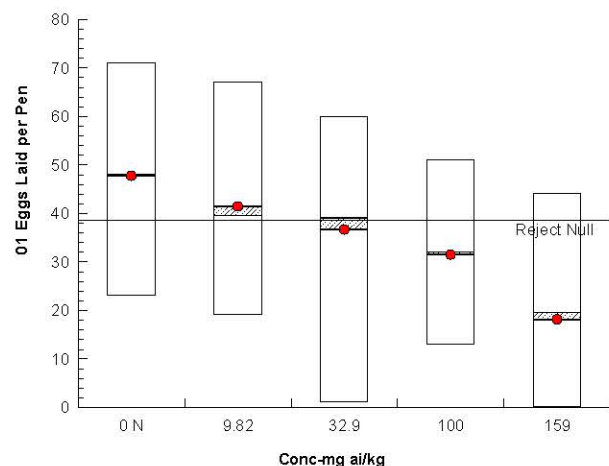
## ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	3.372	13.28	0.4975	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9841	0.9564	0.4496	Normal Distribution

## 01 Eggs Laid per Pen Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	47.69	40.22	55.15	48	23	71	3.503	29.38%	0.00%
9.82		16	41.38	34.08	48.67	39.5	19	67	3.422	33.08%	13.24%
32.9		15	36.6	26.68	46.52	39	1	60	4.626	48.95%	23.25%
100		16	31.44	25.51	37.36	32	13	51	2.781	35.38%	34.08%
159		14	18.07	10.42	25.73	19.5	0	44	3.543	73.36%	62.10%

## Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 3 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSPP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 07-6872-2017	Endpoint: 02 Eggs Not Cracked per EL	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:03	Analysis: Nonparametric-Multiple Comparison	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSPP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		2.02%

### Wilcoxon/Bonferroni Adj Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	0.2225	1.645	2	30	Asymp	1.0000	Non-Significant Effect
		32.9	-0.4684	1.645	2	29	Asymp	1.0000	Non-Significant Effect
		100	0.4226	1.645	1	30	Asymp	1.0000	Non-Significant Effect
		159	-0.6409	1.645	1	26	Asymp	1.0000	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0007927	0.0001982	4	0.381	0.8215	Non-Significant Effect
Error	0.0364118	0.0005202	70			
Total	0.0372045		74			

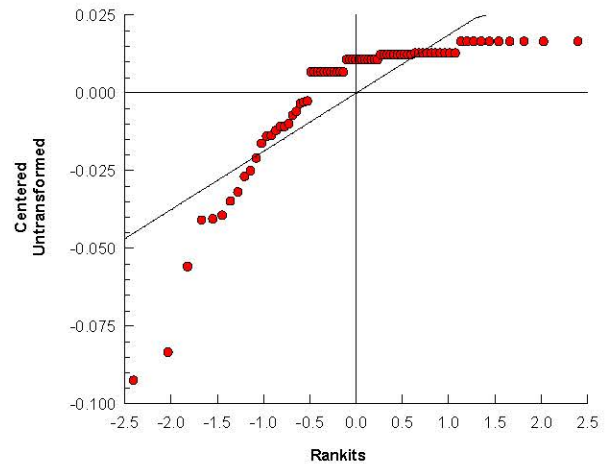
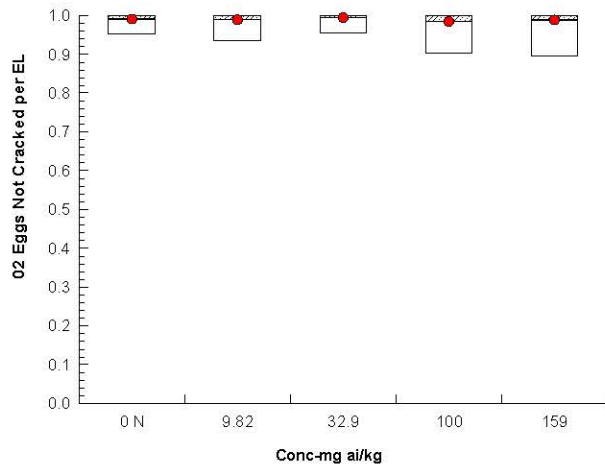
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	12.8	13.28	0.0123	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.7	0.9554	4.3E-11	Non-Normal Distribution

### 02 Eggs Not Cracked per EL Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.9894	0.9800	0.9988	1.0000	0.9500	1.0000	0.0044	1.78%	0.00%
9.82		16	0.9878	0.9774	0.9981	1.0000	0.9318	1.0000	0.0049	1.97%	0.17%
32.9		15	0.9934	0.9860	1.0000	1.0000	0.9524	1.0000	0.0035	1.35%	-0.40%
100		16	0.9835	0.9683	0.9987	1.0000	0.9000	1.0000	0.0071	2.89%	0.60%
159		12	0.9873	0.9668	1.0000	1.0000	0.8947	1.0000	0.0093	3.26%	0.22%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 4 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 05-0534-8647	Endpoint: 02 Eggs Not Cracked per EL	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:04	Analysis: Nonparametric-Control vs Ord. Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU
Untransformed	C > T	159	>159	n/a	

### Jonckheere-Terpstra Step-Down Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	0.2447	1.645	2	Asymp	0.6859	Non-Significant Effect
		32.9	-0.4842	1.645	4	Asymp	0.6859	Non-Significant Effect
		100	0.1685	1.645	4	Asymp	0.6560	Non-Significant Effect
		159	-0.4015	1.645	5	Asymp	0.6560	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0007927	0.0001982	4	0.381	0.8215	Non-Significant Effect
Error	0.0364118	0.0005202	70			
Total	0.0372045		74			

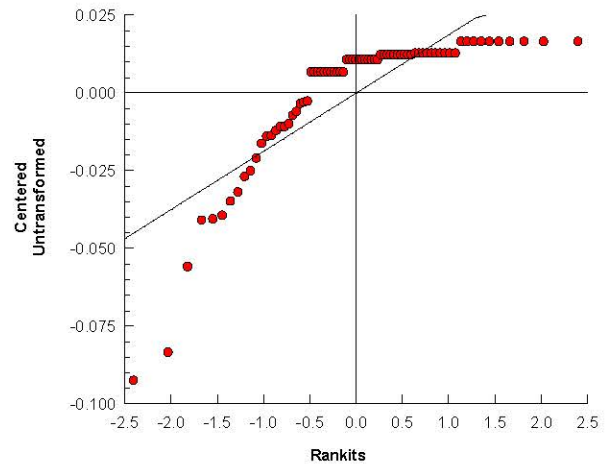
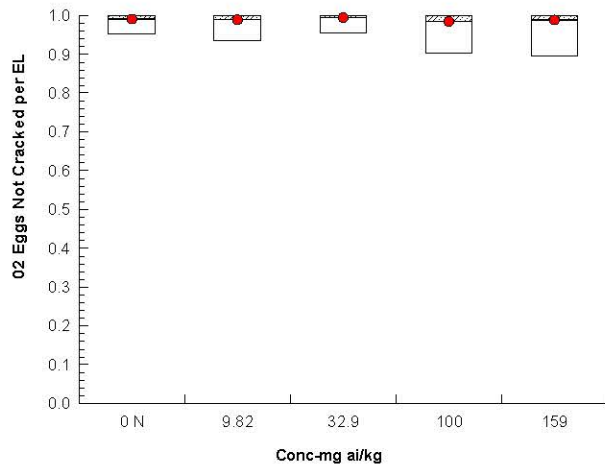
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	12.8	13.28	0.0123	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.7	0.9554	4.3E-11	Non-Normal Distribution

### 02 Eggs Not Cracked per EL Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.9894	0.9800	0.9988	1.0000	0.9500	1.0000	0.0044	1.78%	0.00%
9.82		16	0.9878	0.9774	0.9981	1.0000	0.9318	1.0000	0.0049	1.97%	0.17%
32.9		15	0.9934	0.9860	1.0000	1.0000	0.9524	1.0000	0.0035	1.35%	-0.40%
100		16	0.9835	0.9683	0.9987	1.0000	0.9000	1.0000	0.0071	2.89%	0.60%
159		12	0.9873	0.9668	1.0000	1.0000	0.8947	1.0000	0.0093	3.26%	0.22%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 5 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSPP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 09-6310-0389	Endpoint: 03 Viable Embryos per ES	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:03	Analysis: Nonparametric-Multiple Comparison	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSPP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		28.25%

### Wilcoxon/Bonferroni Adj Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	-1.039	1.645	2	30	Asymp	1.0000	Non-Significant Effect
		32.9	-0.09938	1.645	1	29	Asymp	1.0000	Non-Significant Effect
		100	-0.1722	1.645	1	30	Asymp	1.0000	Non-Significant Effect
		159	-0.5432	1.645	2	26	Asymp	1.0000	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.181455	0.0453638	4	0.5665	0.6877	Non-Significant Effect
Error	5.60509	0.0800727	70			
Total	5.78654		74			

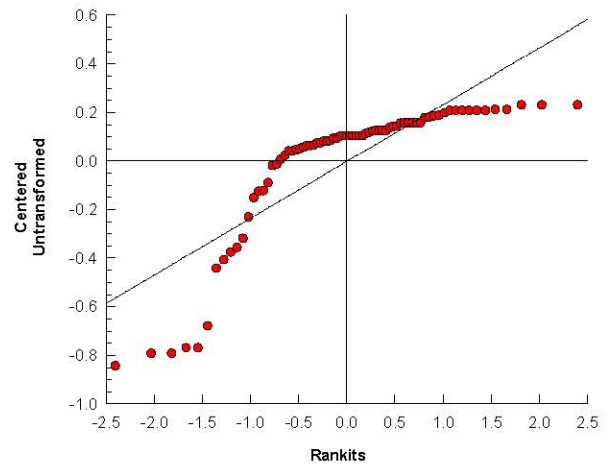
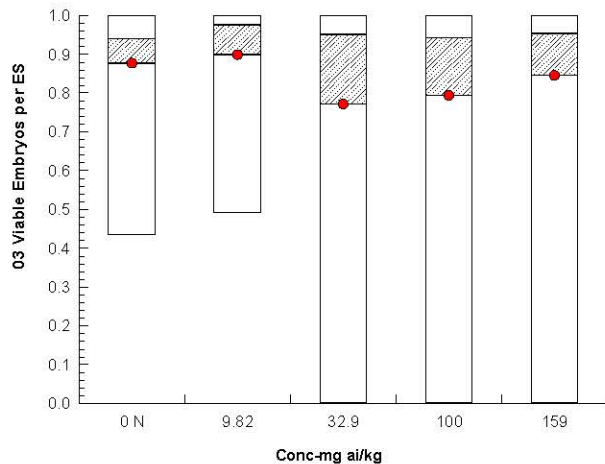
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	17.3	13.28	0.0017	Unequal Variances
Distribution	Shapiro-Wilk W Normality Test	0.7014	0.9554	4.6E-11	Non-Normal Distribution

### 03 Viable Embryos per ES Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.8761	0.7908	0.9614	0.9388	0.4333	1.0000	0.0400	18.28%	0.00%
9.82		16	0.8975	0.8097	0.9854	0.9742	0.4898	1.0000	0.0412	18.37%	-2.45%
32.9		15	0.7704	0.5570	0.9838	0.9500	0.0000	1.0000	0.0995	50.02%	12.07%
100		16	0.7929	0.6103	0.9755	0.9414	0.0000	1.0000	0.0857	43.22%	9.50%
159		12	0.8444	0.6556	1.0000	0.9521	0.0000	1.0000	0.0858	35.20%	3.61%

### Graphics





# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 6 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSPP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 09-6007-4209	Endpoint: 03 Viable Embryos per ES	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:10	Analysis: Nonparametric-Control vs Ord. Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSPP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU
Untransformed	C > T	159	>159	n/a	

### Jonckheere-Terpstra Step-Down Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	-1.02	1.645	2	Asymp	0.8460	Non-Significant Effect
		32.9	-0.03958	1.645	4	Asymp	0.5550	Non-Significant Effect
		100	0.1186	1.645	5	Asymp	0.5550	Non-Significant Effect
		159	-0.1383	1.645	5	Asymp	0.5550	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.181455	0.0453638	4	0.5665	0.6877	Non-Significant Effect
Error	5.60509	0.0800727	70			
Total	5.78654		74			

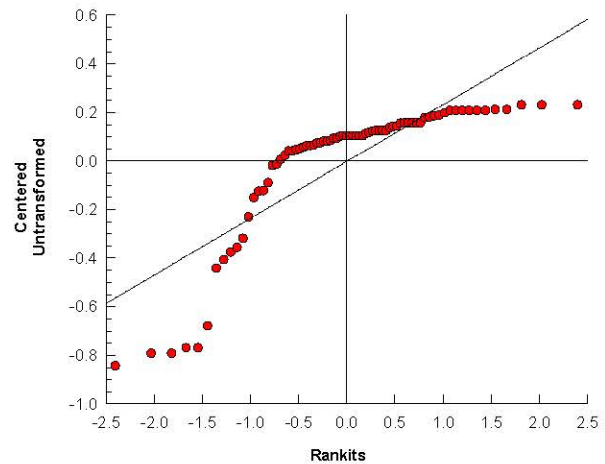
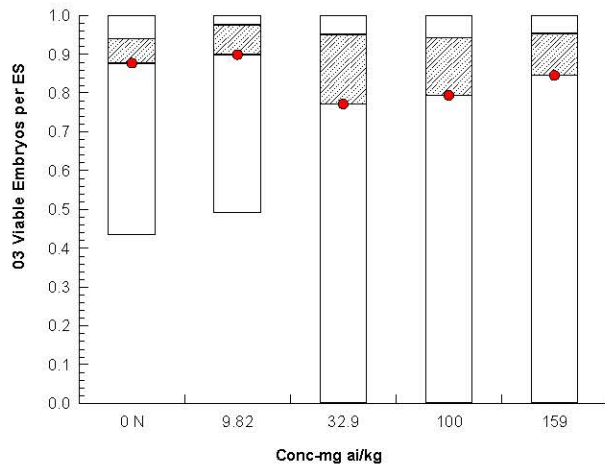
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	17.3	13.28	0.0017	Unequal Variances
Distribution	Shapiro-Wilk W Normality Test	0.7014	0.9554	4.6E-11	Non-Normal Distribution

### 03 Viable Embryos per ES Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.8761	0.7908	0.9614	0.9388	0.4333	1.0000	0.0400	18.28%	0.00%
9.82		16	0.8975	0.8097	0.9854	0.9742	0.4898	1.0000	0.0412	18.37%	-2.45%
32.9		15	0.7704	0.5570	0.9838	0.9500	0.0000	1.0000	0.0995	50.02%	12.07%
100		16	0.7929	0.6103	0.9755	0.9414	0.0000	1.0000	0.0857	43.22%	9.50%
159		12	0.8444	0.6556	1.0000	0.9521	0.0000	1.0000	0.0858	35.20%	3.61%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 7 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSPP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 16-7874-5389	Endpoint: 04 Live Embryos per ES	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:03	Analysis: Nonparametric-Multiple Comparison	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSPP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		28.20%

### Wilcoxon/Bonferroni Adj Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	-0.7397	1.645	2	30	Asymp	1.0000	Non-Significant Effect
		32.9	0.1385	1.645	2	29	Asymp	1.0000	Non-Significant Effect
		100	-0.3999	1.645	2	30	Asymp	1.0000	Non-Significant Effect
		159	0.2093	1.645	3	26	Asymp	1.0000	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.174136	0.0435339	4	0.5568	0.6947	Non-Significant Effect
Error	5.47253	0.078179	70			
Total	5.64666		74			

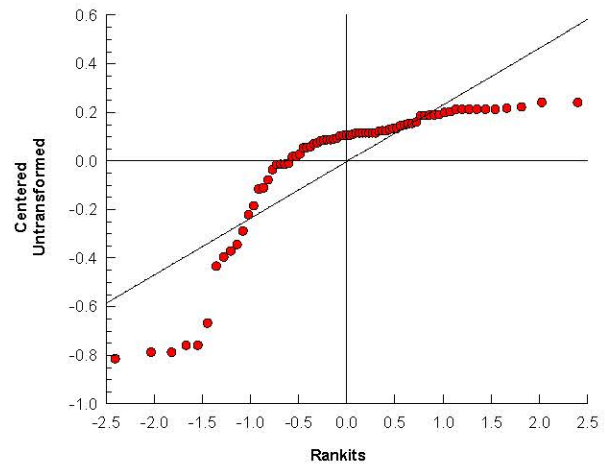
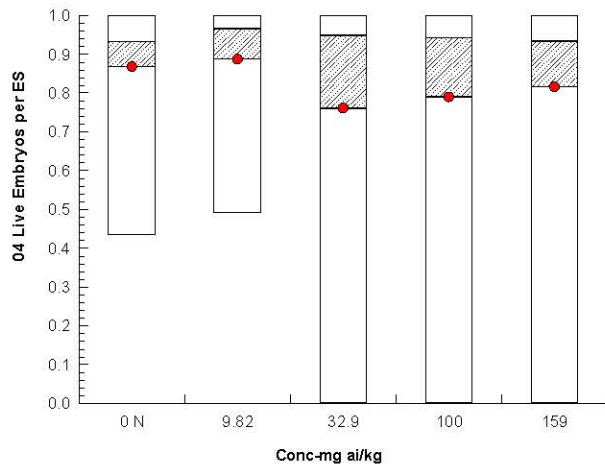
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	17.29	13.28	0.0017	Unequal Variances
Distribution	Shapiro-Wilk W Normality Test	0.7164	0.9554	9.7E-11	Non-Normal Distribution

### 04 Live Embryos per ES Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.8673	0.7817	0.9529	0.9312	0.4333	1.0000	0.0402	18.53%	0.00%
9.82		16	0.8865	0.8006	0.9723	0.9653	0.4898	1.0000	0.0403	18.18%	-2.21%
32.9		15	0.7602	0.5494	0.9709	0.9474	0.0000	1.0000	0.0983	50.06%	12.35%
100		16	0.7889	0.6068	0.9710	0.9414	0.0000	1.0000	0.0854	43.31%	9.04%
159		12	0.8150	0.6315	0.9984	0.9330	0.0000	1.0000	0.0833	35.42%	6.03%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 8 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 20-1331-1920	Endpoint: 04 Live Embryos per ES	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:04	Analysis: Nonparametric-Control vs Ord. Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU
Untransformed	C > T	159	>159	n/a	

### Jonckheere-Terpstra Step-Down Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	-0.7198	1.645	1	Asymp	0.7642	Non-Significant Effect
		32.9	0.1665	1.645	3	Asymp	0.5222	Non-Significant Effect
		100	-0.05564	1.645	5	Asymp	0.5222	Non-Significant Effect
		159	0.2872	1.645	7	Asymp	0.3870	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.174136	0.0435339	4	0.5568	0.6947	Non-Significant Effect
Error	5.47253	0.078179	70			
Total	5.64666		74			

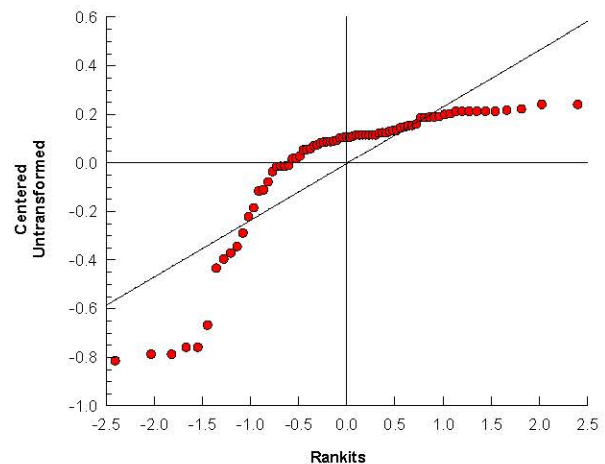
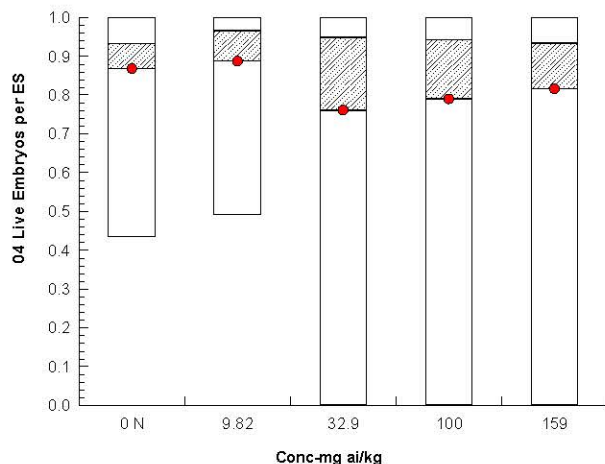
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	17.29	13.28	0.0017	Unequal Variances
Distribution	Shapiro-Wilk W Normality Test	0.7164	0.9554	9.7E-11	Non-Normal Distribution

### 04 Live Embryos per ES Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.8673	0.7817	0.9529	0.9312	0.4333	1.0000	0.0402	18.53%	0.00%
9.82		16	0.8865	0.8006	0.9723	0.9653	0.4898	1.0000	0.0403	18.18%	-2.21%
32.9		15	0.7602	0.5494	0.9709	0.9474	0.0000	1.0000	0.0983	50.06%	12.35%
100		16	0.7889	0.6068	0.9710	0.9414	0.0000	1.0000	0.0854	43.31%	9.04%
159		12	0.8150	0.6315	0.9984	0.9330	0.0000	1.0000	0.0833	35.42%	6.03%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 9 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 13-5897-2566	Endpoint: 05 Hatchlings per ES	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:03	Analysis: Nonparametric-Multiple Comparison	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		30.45%

### Wilcoxon/Bonferroni Adj Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	0.6408	1.645	1	30	Asymp	1.0000	Non-Significant Effect
		32.9	1.68	1.645	0	29	Asymp	0.1859	Non-Significant Effect
		100	0.3204	1.645	0	30	Asymp	1.0000	Non-Significant Effect
		159	0.9522	1.645	1	26	Asymp	0.6820	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.220268	0.0550669	4	0.7991	0.5298	Non-Significant Effect
Error	4.82356	0.0689081	70			
Total	5.04383		74			

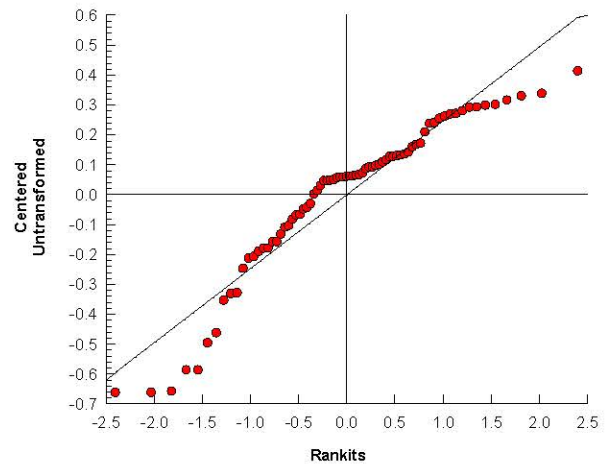
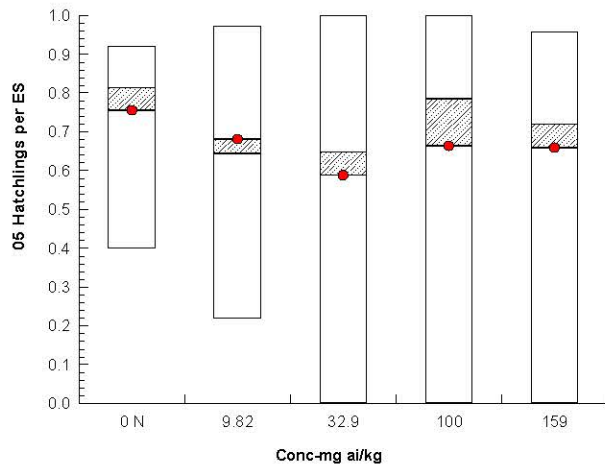
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	8.068	13.28	0.0891	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9113	0.9554	6.4E-05	Non-Normal Distribution

### 05 Hatchlings per ES Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.7542	0.6693	0.8391	0.8125	0.4000	0.9211	0.0398	21.13%	0.00%
9.82		16	0.6802	0.5595	0.8009	0.6427	0.2174	0.9714	0.0566	33.31%	9.81%
32.9		15	0.5872	0.4143	0.7601	0.6471	0.0000	1.0000	0.0806	53.16%	22.13%
100		16	0.6625	0.4932	0.8318	0.7836	0.0000	1.0000	0.0794	47.95%	12.15%
159		12	0.6583	0.4876	0.8291	0.7188	0.0000	0.9565	0.0776	40.82%	12.70%

### Graphics





# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 10 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 17-5198-5037	Endpoint: 05 Hatchlings per ES	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:04	Analysis: Nonparametric-Control vs Ord. Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU
Untransformed	C > T	159	>159	n/a	

### Jonckheere-Terpstra Step-Down Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	0.6597	1.645	2	Asymp	0.2596	Non-Significant Effect
		32.9	1.367	1.645	4	Asymp	0.2596	Non-Significant Effect
		100	0.6447	1.645	4	Asymp	0.2596	Non-Significant Effect
		159	0.6504	1.645	5	Asymp	0.2577	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.220268	0.0550669	4	0.7991	0.5298	Non-Significant Effect
Error	4.82356	0.0689081	70			
Total	5.04383		74			

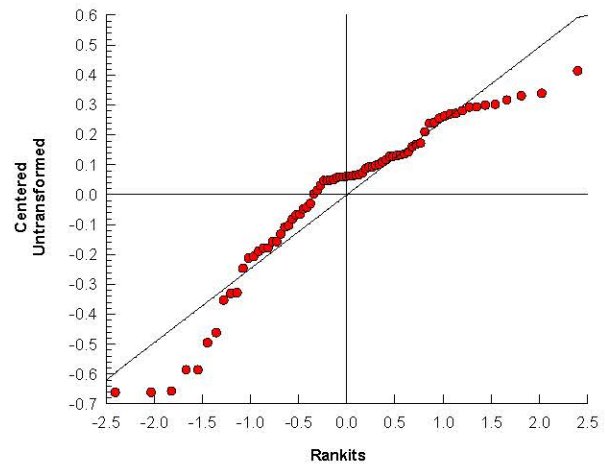
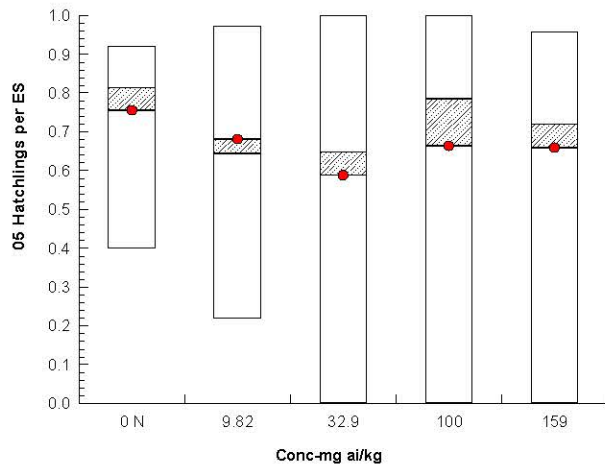
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	8.068	13.28	0.0891	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9113	0.9554	6.4E-05	Non-Normal Distribution

### 05 Hatchlings per ES Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.7542	0.6693	0.8391	0.8125	0.4000	0.9211	0.0398	21.13%	0.00%
9.82		16	0.6802	0.5595	0.8009	0.6427	0.2174	0.9714	0.0566	33.31%	9.81%
32.9		15	0.5872	0.4143	0.7601	0.6471	0.0000	1.0000	0.0806	53.16%	22.13%
100		16	0.6625	0.4932	0.8318	0.7836	0.0000	1.0000	0.0794	47.95%	12.15%
159		12	0.6583	0.4876	0.8291	0.7188	0.0000	0.9565	0.0776	40.82%	12.70%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 11 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 10-3925-2514	Endpoint: 06 14d Hatchlings per ES	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:03	Analysis: Nonparametric-Multiple Comparison	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		30.40%

### Wilcoxon/Bonferroni Adj Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	0.7726	1.645	0	30	Asymp	0.8795	Non-Significant Effect
		32.9	1.759	1.645	0	29	Asymp	0.1571	Non-Significant Effect
		100	0.3015	1.645	1	30	Asymp	1.0000	Non-Significant Effect
		159	0.9058	1.645	1	26	Asymp	0.7301	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.220473	0.0551184	4	0.8112	0.5223	Non-Significant Effect
Error	4.75646	0.0679494	70			
Total	4.97693		74			

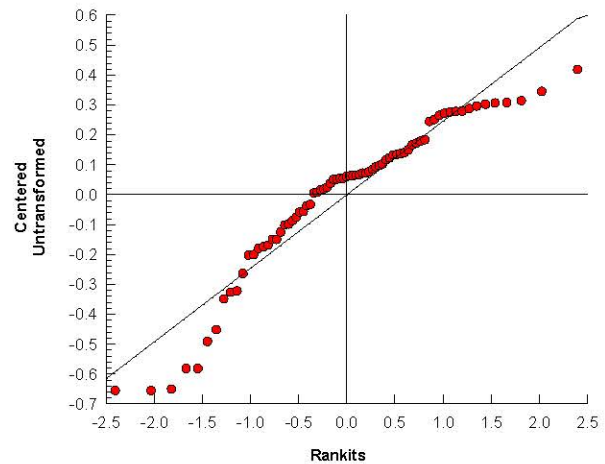
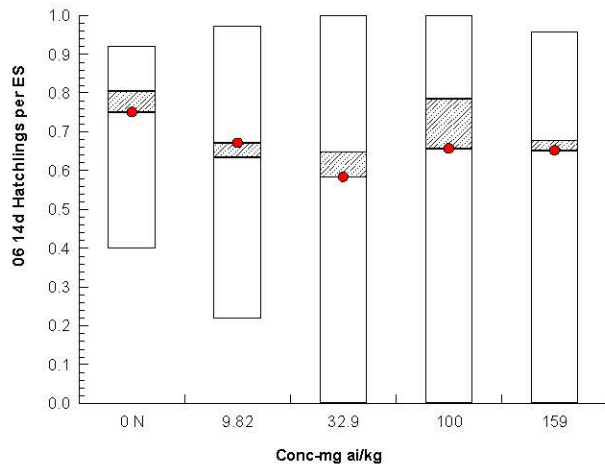
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	8.036	13.28	0.0903	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9155	0.9554	9.9E-05	Non-Normal Distribution

### 06 14d Hatchlings per ES Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.7500	0.6660	0.8341	0.8048	0.4000	0.9211	0.0394	21.03%	0.00%
9.82		16	0.6704	0.5497	0.7911	0.6340	0.2174	0.9714	0.0566	33.79%	10.62%
32.9		15	0.5829	0.4120	0.7538	0.6471	0.0000	1.0000	0.0797	52.94%	22.28%
100		16	0.6563	0.4880	0.8245	0.7836	0.0000	1.0000	0.0789	48.10%	12.50%
159		12	0.6514	0.4816	0.8212	0.6771	0.0000	0.9565	0.0771	41.02%	13.15%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 12 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 14-3223-7439	Endpoint: 06 14d Hatchlings per ES	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:04	Analysis: Nonparametric-Control vs Ord. Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU
Untransformed	C > T	159	>159	n/a	

### Jonckheere-Terpstra Step-Down Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	0.7915	1.645	1	Asymp	0.2607	Non-Significant Effect
		32.9	1.357	1.645	4	Asymp	0.2607	Non-Significant Effect
		100	0.6447	1.645	5	Asymp	0.2607	Non-Significant Effect
		159	0.6411	1.645	6	Asymp	0.2607	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.220473	0.0551184	4	0.8112	0.5223	Non-Significant Effect
Error	4.75646	0.0679494	70			
Total	4.97693		74			

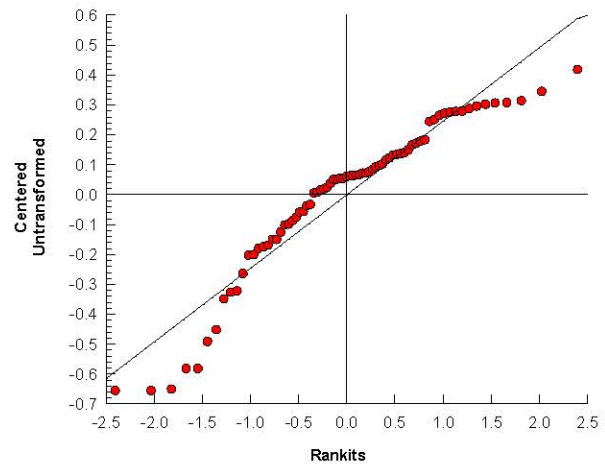
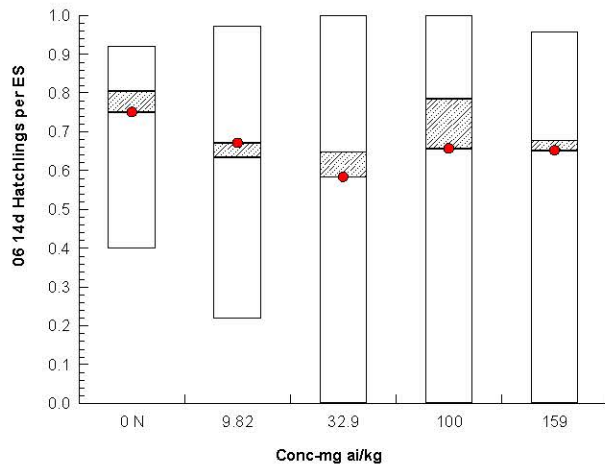
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	8.036	13.28	0.0903	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9155	0.9554	9.9E-05	Non-Normal Distribution

### 06 14d Hatchlings per ES Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.7500	0.6660	0.8341	0.8048	0.4000	0.9211	0.0394	21.03%	0.00%
9.82		16	0.6704	0.5497	0.7911	0.6340	0.2174	0.9714	0.0566	33.79%	10.62%
32.9		15	0.5829	0.4120	0.7538	0.6471	0.0000	1.0000	0.0797	52.94%	22.28%
100		16	0.6563	0.4880	0.8245	0.7836	0.0000	1.0000	0.0789	48.10%	12.50%
159		12	0.6514	0.4816	0.8212	0.6771	0.0000	0.9565	0.0771	41.02%	13.15%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 13 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 10-5265-4501	Endpoint: 07 Live Embryos per VE	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:03	Analysis: Nonparametric-Multiple Comparison	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		2.28%

### Wilcoxon/Bonferroni Adj Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	-0.5947	1.645	1	30	Asymp	1.0000	Non-Significant Effect
		32.9	0.3361	1.645	1	27	Asymp	1.0000	Non-Significant Effect
		100	-0.9812	1.645	1	28	Asymp	1.0000	Non-Significant Effect
		159	1.281	1.645	1	25	Asymp	0.4002	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0059121	0.0014780	4	2.35	0.0634	Non-Significant Effect
Error	0.0408899	0.0006291	65			
Total	0.046802		69			

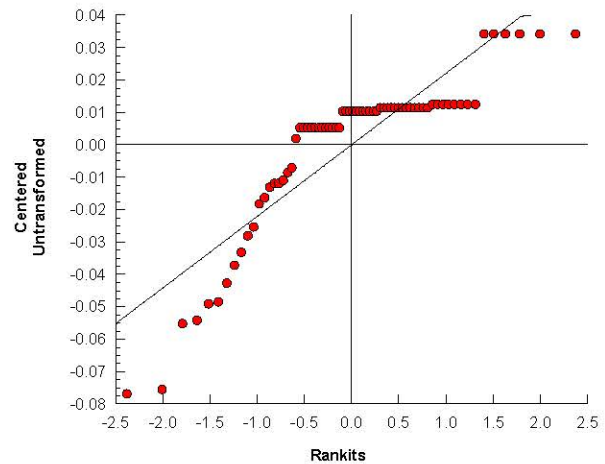
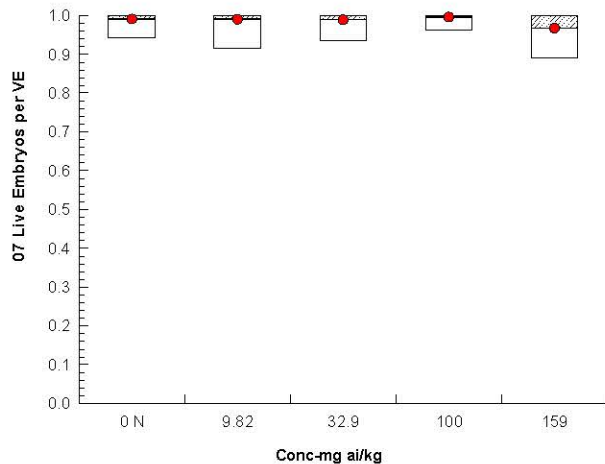
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	19.76	13.28	5.6E-04	Unequal Variances
Distribution	Shapiro-Wilk W Normality Test	0.8034	0.9526	3.0E-08	Non-Normal Distribution

### 07 Live Embryos per VE Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.9898	0.9804	0.9992	1.0000	0.9412	1.0000	0.0044	1.79%	0.00%
9.82		16	0.9887	0.9744	1.0000	1.0000	0.9130	1.0000	0.0067	2.70%	0.11%
32.9		13	0.9876	0.9757	0.9996	1.0000	0.9333	1.0000	0.0055	2.00%	0.22%
100		14	0.9949	0.9873	1.0000	1.0000	0.9615	1.0000	0.0035	1.31%	-0.51%
159		11	0.9659	0.9370	0.9948	1.0000	0.8889	1.0000	0.0130	4.46%	2.41%

### Graphics





# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 14 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 11-1249-5639	Endpoint: 07 Live Embryos per VE	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:04	Analysis: Nonparametric-Control vs Ord. Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU
Untransformed	C > T	159	>159	n/a	

### Jonckheere-Terpstra Step-Down Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	-0.5699	1.645	1	Asymp	0.7156	Non-Significant Effect
		32.9	0.2609	1.645	3	Asymp	0.7148	Non-Significant Effect
		100	-0.5674	1.645	3	Asymp	0.7148	Non-Significant Effect
		159	0.7883	1.645	3	Asymp	0.2152	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0059121	0.0014780	4	2.35	0.0634	Non-Significant Effect
Error	0.0408899	0.0006291	65			
Total	0.046802		69			

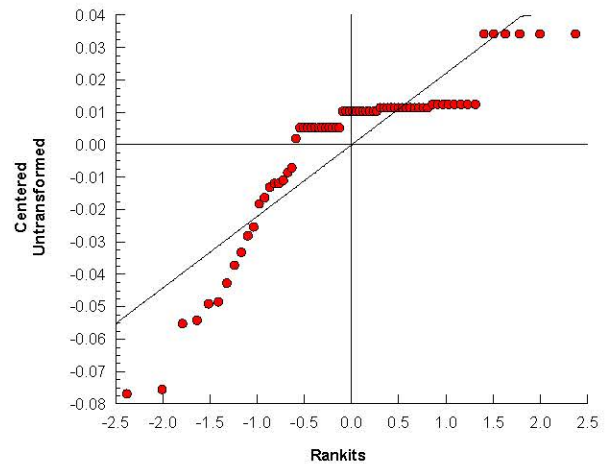
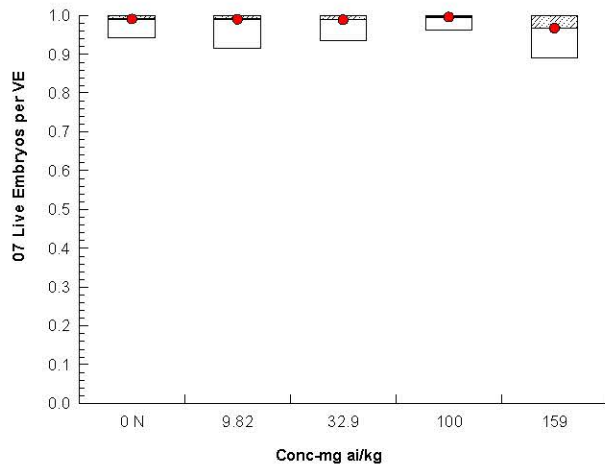
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	19.76	13.28	5.6E-04	Unequal Variances
Distribution	Shapiro-Wilk W Normality Test	0.8034	0.9526	3.0E-08	Non-Normal Distribution

### 07 Live Embryos per VE Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.9898	0.9804	0.9992	1.0000	0.9412	1.0000	0.0044	1.79%	0.00%
9.82		16	0.9887	0.9744	1.0000	1.0000	0.9130	1.0000	0.0067	2.70%	0.11%
32.9		13	0.9876	0.9757	0.9996	1.0000	0.9333	1.0000	0.0055	2.00%	0.22%
100		14	0.9949	0.9873	1.0000	1.0000	0.9615	1.0000	0.0035	1.31%	-0.51%
159		11	0.9659	0.9370	0.9948	1.0000	0.8889	1.0000	0.0130	4.46%	2.41%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 15 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSPP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 07-3290-3425	Endpoint: 08 Hatchlings per LE	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:03	Analysis: Nonparametric-Multiple Comparison	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSPP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		16.61%

### Wilcoxon/Bonferroni Adj Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	1.168	1.645	1	30	Asymp	0.4852	Non-Significant Effect
		32.9	1.601	1.645	1	27	Asymp	0.2186	Non-Significant Effect
		100	-0.08315	1.645	1	28	Asymp	1.0000	Non-Significant Effect
		159	0.297	1.645	2	25	Asymp	1.0000	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0930157	0.0232539	4	0.9031	0.4675	Non-Significant Effect
Error	1.67372	0.0257495	65			
Total	1.76673		69			

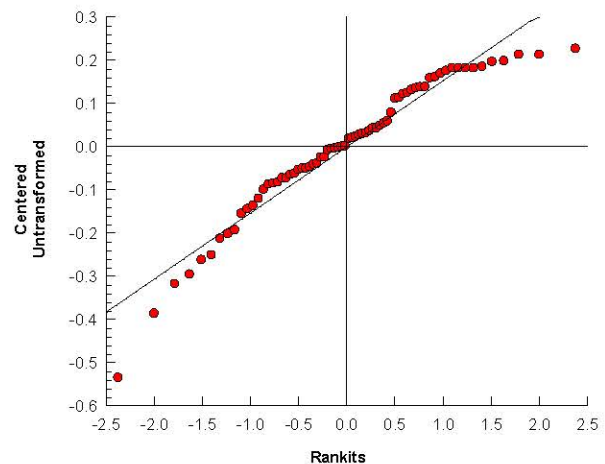
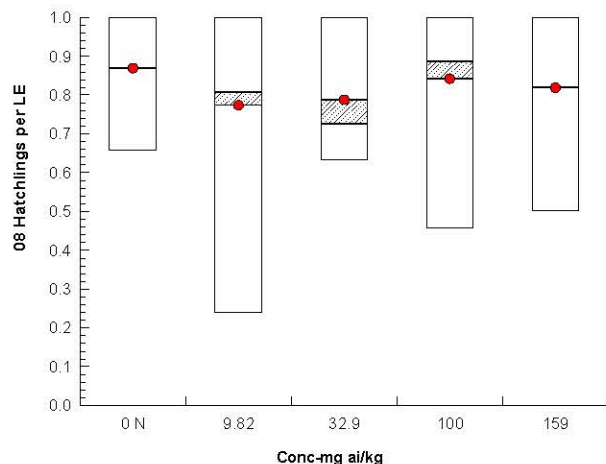
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	13.37	13.28	0.0096	Unequal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9413	0.9526	0.0026	Non-Normal Distribution

### 08 Hatchlings per LE Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.8680	0.8250	0.9111	0.8681	0.6552	1.0000	0.0202	9.30%	0.00%
9.82		16	0.7726	0.6591	0.8861	0.8069	0.2381	1.0000	0.0532	27.57%	11.00%
32.9		13	0.7866	0.7069	0.8663	0.7250	0.6316	1.0000	0.0366	16.77%	9.38%
100		14	0.8406	0.7492	0.9320	0.8855	0.4545	1.0000	0.0423	18.83%	3.16%
159		11	0.8175	0.6899	0.9452	0.8182	0.5000	1.0000	0.0573	23.24%	5.82%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:12 (p 16 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 00-9054-8551	Endpoint: 08 Hatchlings per LE	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:04	Analysis: Nonparametric-Control vs Ord. Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU
Untransformed	C > T	159	>159	n/a	

### Jonckheere-Terpstra Step-Down Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	159.5	n/a		Exact	0.4628	Non-Significant Effect
		32.9	1.575	1.645	2	Asymp	0.4628	Non-Significant Effect
		100	0.393	1.645	3	Asymp	0.4628	Non-Significant Effect
		159	0.09349	1.645	6	Asymp	0.4628	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0930157	0.0232539	4	0.9031	0.4675	Non-Significant Effect
Error	1.67372	0.0257495	65			
Total	1.76673		69			

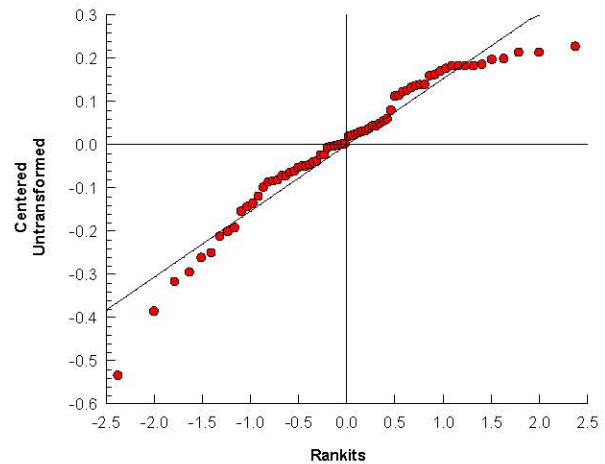
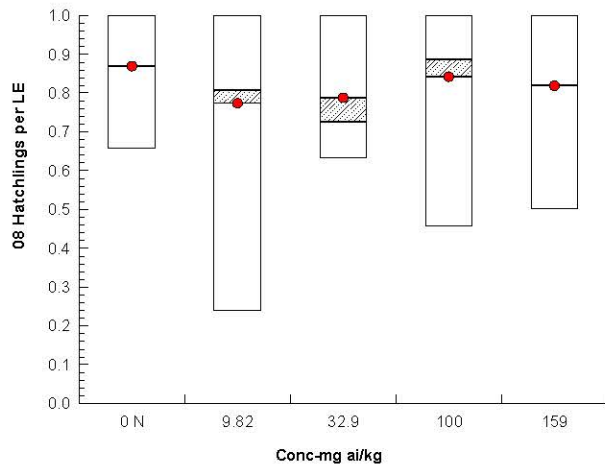
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	13.37	13.28	0.0096	Unequal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9413	0.9526	0.0026	Non-Normal Distribution

### 08 Hatchlings per LE Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.8680	0.8250	0.9111	0.8681	0.6552	1.0000	0.0202	9.30%	0.00%
9.82		16	0.7726	0.6591	0.8861	0.8069	0.2381	1.0000	0.0532	27.57%	11.00%
32.9		13	0.7866	0.7069	0.8663	0.7250	0.6316	1.0000	0.0366	16.77%	9.38%
100		14	0.8406	0.7492	0.9320	0.8855	0.4545	1.0000	0.0423	18.83%	3.16%
159		11	0.8175	0.6899	0.9452	0.8182	0.5000	1.0000	0.0573	23.24%	5.82%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:13 (p 17 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 04-1313-3205	Endpoint: 09 14d Hatchlings per NH	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:03	Analysis: Nonparametric-Multiple Comparison	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		2.08%

### Wilcoxon/Bonferroni Adj Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	1.024	1.645	1	30	Asymp	0.6119	Non-Significant Effect
		32.9	0.6327	1.645	1	27	Asymp	1.0000	Non-Significant Effect
		100	0.6082	1.645	1	28	Asymp	1.0000	Non-Significant Effect
		159	-0.226	1.645	1	25	Asymp	1.0000	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0009102	0.0002276	4	0.4297	0.7866	Non-Significant Effect
Error	0.0344197	0.0005295	65			
Total	0.03533		69			

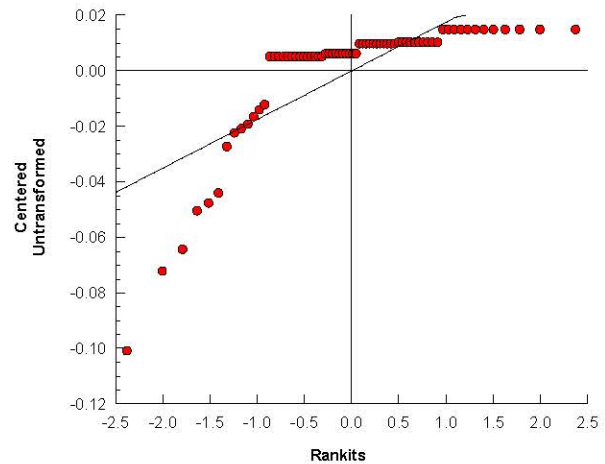
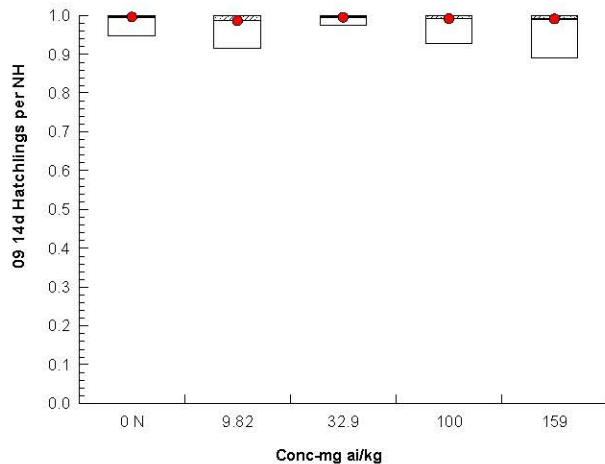
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	16.91	13.28	0.0020	Unequal Variances
Distribution	Shapiro-Wilk W Normality Test	0.6072	0.9526	2.1E-12	Non-Normal Distribution

### 09 14d Hatchlings per NH Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.9950	0.9871	1.0000	1.0000	0.9444	1.0000	0.0037	1.49%	0.00%
9.82		16	0.9853	0.9701	1.0000	1.0000	0.9130	1.0000	0.0071	2.89%	0.98%
32.9		13	0.9940	0.9870	1.0000	1.0000	0.9714	1.0000	0.0032	1.16%	0.10%
100		14	0.9904	0.9778	1.0000	1.0000	0.9259	1.0000	0.0058	2.19%	0.47%
159		11	0.9899	0.9674	1.0000	1.0000	0.8889	1.0000	0.0101	3.38%	0.51%

### Graphics





# CETIS Analytical Report

Report Date: 13 Apr-20 20:13 (p 18 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 19-1824-8075	Endpoint: 09 14d Hatchlings per NH	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:04	Analysis: Nonparametric-Control vs Ord. Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU
Untransformed	C > T	159	>159	n/a	

### Jonckheere-Terpstra Step-Down Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	1.051	1.645	1	Asymp	0.5183	Non-Significant Effect
		32.9	0.6725	1.645	2	Asymp	0.5183	Non-Significant Effect
		100	0.5305	1.645	2	Asymp	0.5183	Non-Significant Effect
		159	-0.04595	1.645	2	Asymp	0.5183	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0009102	0.0002276	4	0.4297	0.7866	Non-Significant Effect
Error	0.0344197	0.0005295	65			
Total	0.03533		69			

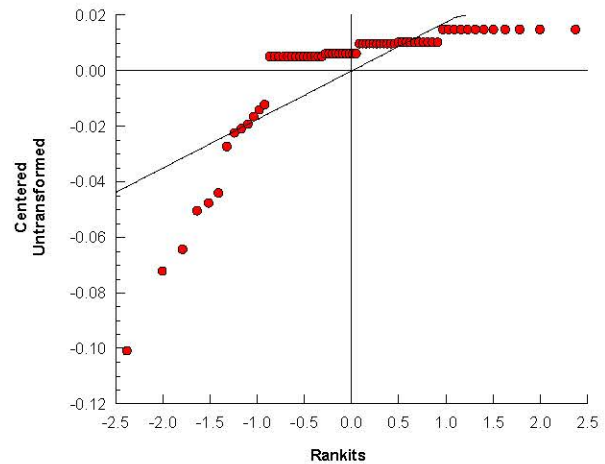
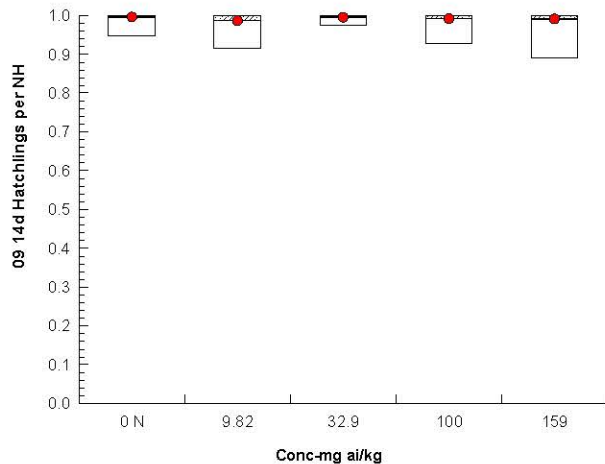
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	16.91	13.28	0.0020	Unequal Variances
Distribution	Shapiro-Wilk W Normality Test	0.6072	0.9526	2.1E-12	Non-Normal Distribution

### 09 14d Hatchlings per NH Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.9950	0.9871	1.0000	1.0000	0.9444	1.0000	0.0037	1.49%	0.00%
9.82		16	0.9853	0.9701	1.0000	1.0000	0.9130	1.0000	0.0071	2.89%	0.98%
32.9		13	0.9940	0.9870	1.0000	1.0000	0.9714	1.0000	0.0032	1.16%	0.10%
100		14	0.9904	0.9778	1.0000	1.0000	0.9259	1.0000	0.0058	2.19%	0.47%
159		11	0.9899	0.9674	1.0000	1.0000	0.8889	1.0000	0.0101	3.38%	0.51%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:13 (p 19 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 00-5215-5733	Endpoint: 10 Eggshell Thickness	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:00	Analysis: Parametric-Control vs Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		5.71%

### Dunnett Multiple Comparison Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	-0.1923	2.208	0.020	30	CDF	0.8644	Non-Significant Effect
		32.9	-0.363	2.208	0.021	28	CDF	0.9037	Non-Significant Effect
		100	1.236	2.208	0.020	30	CDF	0.2846	Non-Significant Effect
		159	1.731	2.208	0.022	26	CDF	0.1302	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0044292	0.0011073	4	1.671	0.1666	Non-Significant Effect
Error	0.0457234	0.0006627	69			
Total	0.0501526		73			

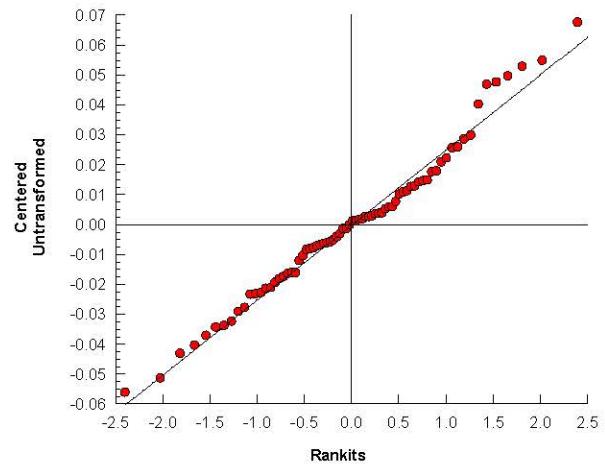
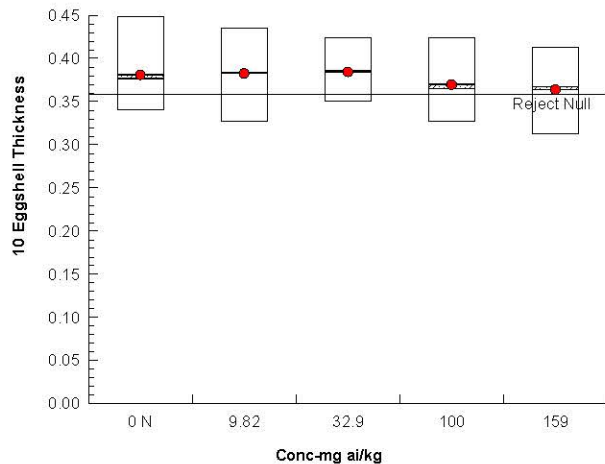
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	2.723	13.28	0.6052	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9814	0.9549	0.3459	Normal Distribution

### 10 Eggshell Thickness Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.3804	0.3669	0.394	0.3765	0.34	0.448	0.006365	6.69%	0.00%
9.82		16	0.3822	0.3671	0.3973	0.383	0.326	0.435	0.007071	7.40%	-0.46%
32.9		14	0.3839	0.3724	0.3953	0.385	0.35	0.424	0.005317	5.18%	-0.90%
100		16	0.3692	0.3566	0.3818	0.3645	0.326	0.424	0.005896	6.39%	2.96%
159		12	0.3634	0.3438	0.3831	0.3665	0.312	0.413	0.008923	8.51%	4.47%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:13 (p 20 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 15-9853-1600	Endpoint: 10 Eggshell Thickness	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:04	Analysis: Parametric-Control vs Ord.Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		4.56%

### Williams Multiple Comparison Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	-0.1923	1.668	0.015	30	CDF	>0.05	Non-Significant Effect
		32.9	-0.2685	1.738	0.016	28	CDF	>0.05	Non-Significant Effect
		100	1.236	1.766	0.016	30	CDF	>0.05	Non-Significant Effect
		159	1.731	1.764	0.017	26	CDF	>0.05	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0044292	0.0011073	4	1.671	0.1666	Non-Significant Effect
Error	0.0457234	0.0006627	69			
Total	0.0501526		73			

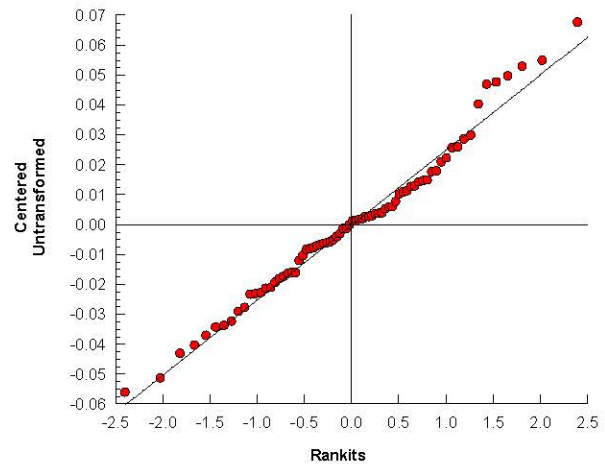
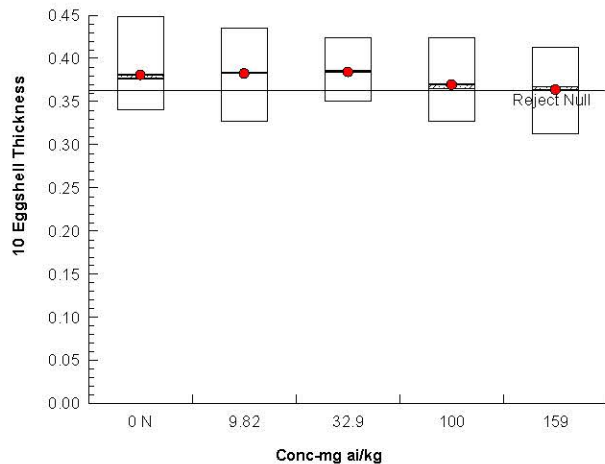
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	2.723	13.28	0.6052	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9814	0.9549	0.3459	Normal Distribution

### 10 Eggshell Thickness Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	0.3804	0.3669	0.394	0.3765	0.34	0.448	0.006365	6.69%	0.00%
9.82		16	0.3822	0.3671	0.3973	0.383	0.326	0.435	0.007071	7.40%	-0.46%
32.9		14	0.3839	0.3724	0.3953	0.385	0.35	0.424	0.005317	5.18%	-0.90%
100		16	0.3692	0.3566	0.3818	0.3645	0.326	0.424	0.005896	6.39%	2.96%
159		12	0.3634	0.3438	0.3831	0.3665	0.312	0.413	0.008923	8.51%	4.47%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:13 (p 21 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 18-0312-0676	Endpoint: 11 Hatchling Weight	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:00	Analysis: Parametric-Control vs Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		6.94%

### Dunnett Multiple Comparison Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	0.5646	2.216	2.208	30	CDF	0.5883	Non-Significant Effect
		32.9	-1.078	2.216	2.331	27	CDF	0.9853	Non-Significant Effect
		100	0.03463	2.216	2.285	28	CDF	0.8030	Non-Significant Effect
		159	1.38	2.216	2.446	25	CDF	0.2353	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	45.4323	11.3581	4	1.431	0.2339	Non-Significant Effect
Error	516.053	7.93928	65			
Total	561.486		69			

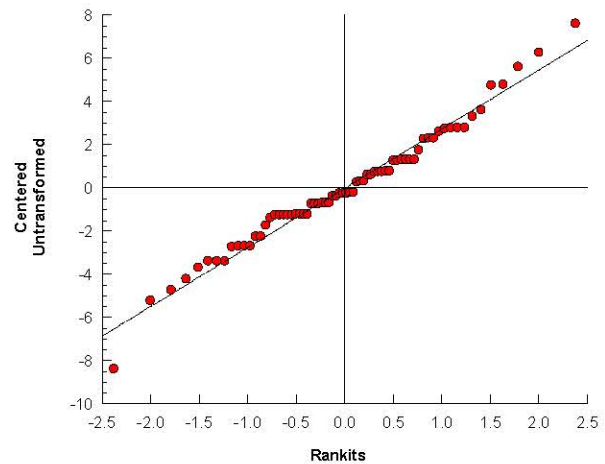
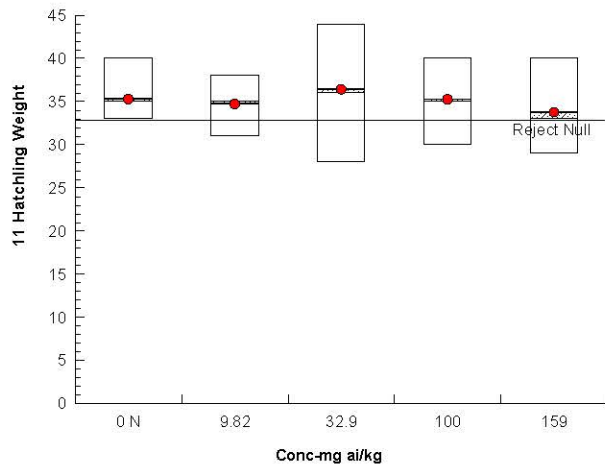
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	11.17	13.28	0.0247	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9814	0.9526	0.3839	Normal Distribution

### 11 Hatchling Weight Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	35.25	34.25	36.25	35	33	40	0.4699	5.33%	0.00%
9.82		16	34.69	33.57	35.8	35	31	38	0.5222	6.02%	1.60%
32.9		13	36.38	33.81	38.95	36	28	44	1.18	11.69%	-3.22%
100		14	35.21	33.63	36.8	35	30	40	0.7351	7.81%	0.10%
159		11	33.73	31.8	35.65	33	29	40	0.8644	8.50%	4.32%

### Graphics





# CETIS Analytical Report

Report Date: 13 Apr-20 20:13 (p 22 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 05-7659-6113	Endpoint: 11 Hatchling Weight	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:04	Analysis: Parametric-Control vs Ord.Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		5.52%

### Williams Multiple Comparison Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	0.5646	1.669	1.663	30	CDF	>0.05	Non-Significant Effect
		32.9	-0.1885	1.738	1.829	27	CDF	>0.05	Non-Significant Effect
		100	0.03463	1.763	1.817	28	CDF	>0.05	Non-Significant Effect
		159	1.38	1.763	1.946	25	CDF	>0.05	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	45.4323	11.3581	4	1.431	0.2339	Non-Significant Effect
Error	516.053	7.93928	65			
Total	561.486		69			

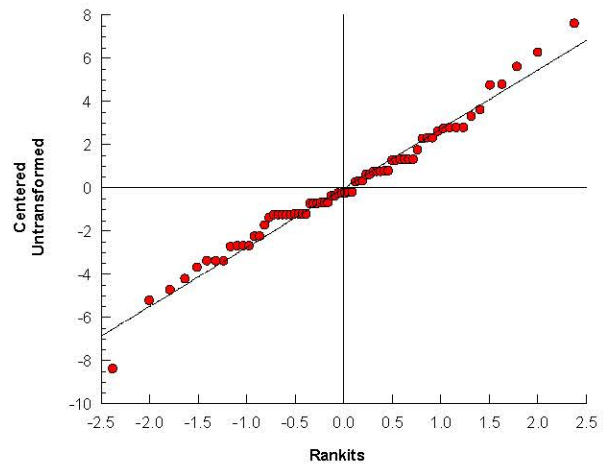
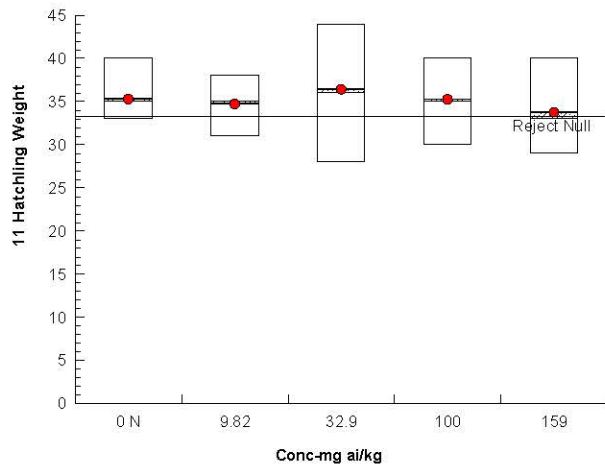
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	11.17	13.28	0.0247	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9814	0.9526	0.3839	Normal Distribution

### 11 Hatchling Weight Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	35.25	34.25	36.25	35	33	40	0.4699	5.33%	0.00%
9.82		16	34.69	33.57	35.8	35	31	38	0.5222	6.02%	1.60%
32.9		13	36.38	33.81	38.95	36	28	44	1.18	11.69%	-3.22%
100		14	35.21	33.63	36.8	35	30	40	0.7351	7.81%	0.10%
159		11	33.73	31.8	35.65	33	29	40	0.8644	8.50%	4.32%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:13 (p 23 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSPP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 14-8337-3075	Endpoint: 12 14d Survivor Weight	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:00	Analysis: Parametric-Control vs Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSPP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		7.47%

### Dunnett Multiple Comparison Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	0.6086	2.216	19.8	30	CDF	0.5680	Non-Significant Effect
		32.9	0.05146	2.216	20.91	27	CDF	0.7973	Non-Significant Effect
		100	-0.3176	2.216	20.49	28	CDF	0.8985	Non-Significant Effect
		159	0.3415	2.216	21.93	25	CDF	0.6869	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	608.539	152.135	4	0.2382	0.9158	Non-Significant Effect
Error	41513.7	638.673	65			
Total	42122.3		69			

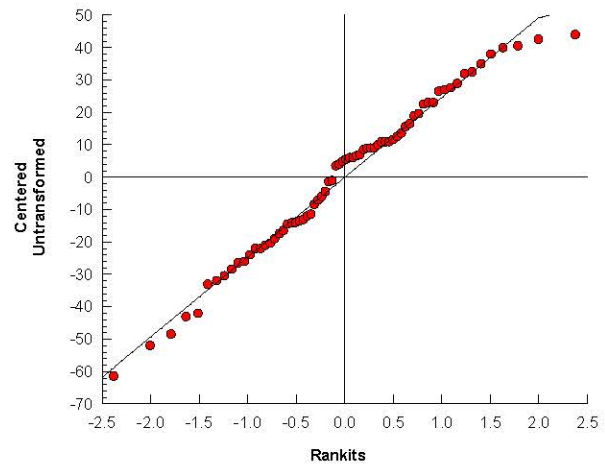
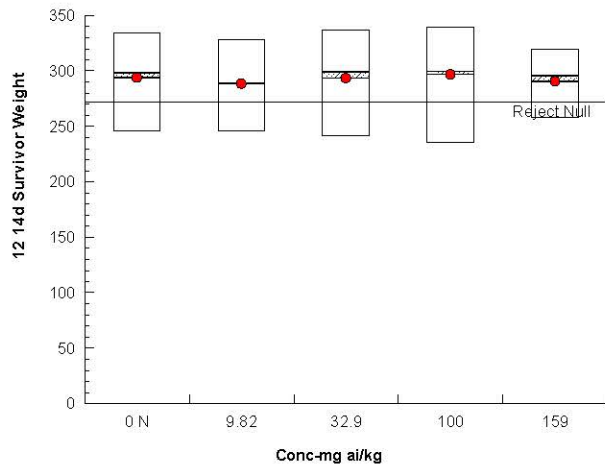
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	1.82	13.28	0.7688	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9808	0.9526	0.3588	Normal Distribution

### 12 14d Survivor Weight Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	293.6	280.2	306.9	298	245	334	6.26	8.53%	0.00%
9.82		16	288.1	273.6	302.6	288.5	245	328	6.81	9.45%	1.85%
32.9		13	293.1	276.8	309.4	299	241	337	7.491	9.22%	0.17%
100		14	296.5	281.5	311.5	299	235	339	6.946	8.77%	-1.00%
159		11	290.2	277.7	302.7	295	257	319	5.597	6.40%	1.15%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:13 (p 24 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSPP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 02-5684-2714	Endpoint: 12 14d Survivor Weight	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:04	Analysis: Parametric-Control vs Ord.Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSPP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		5.94%

### Williams Multiple Comparison Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	0.6086	1.669	14.91	30	CDF	>0.05	Non-Significant Effect
		32.9	0.341	1.738	16.4	27	CDF	>0.05	Non-Significant Effect
		100	0.1312	1.763	16.3	28	CDF	>0.05	Non-Significant Effect
		159	0.3415	1.763	17.45	25	CDF	>0.05	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	608.539	152.135	4	0.2382	0.9158	Non-Significant Effect
Error	41513.7	638.673	65			
Total	42122.3		69			

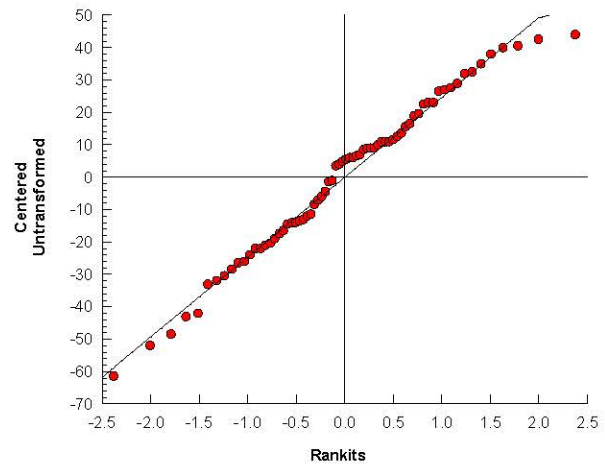
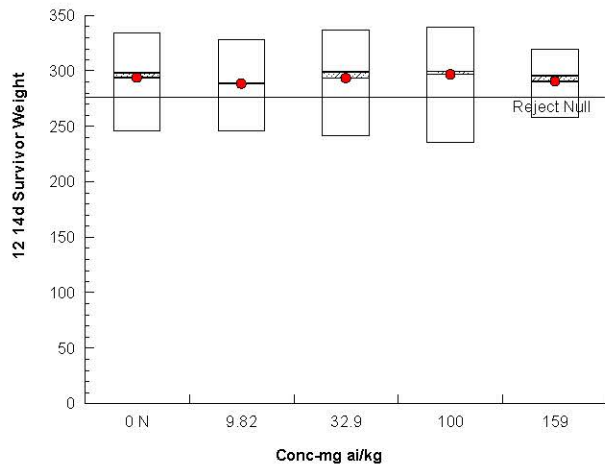
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	1.82	13.28	0.7688	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9808	0.9526	0.3588	Normal Distribution

### 12 14d Survivor Weight Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	293.6	280.2	306.9	298	245	334	6.26	8.53%	0.00%
9.82		16	288.1	273.6	302.6	288.5	245	328	6.81	9.45%	1.85%
32.9		13	293.1	276.8	309.4	299	241	337	7.491	9.22%	0.17%
100		14	296.5	281.5	311.5	299	235	339	6.946	8.77%	-1.00%
159		11	290.2	277.7	302.7	295	257	319	5.597	6.40%	1.15%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:13 (p 25 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSPP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 06-9807-0361	Endpoint: 13 Mean Food Consumption (Adult)	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:00	Analysis: Parametric-Control vs Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSPP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		15.44%

### Dunnett Multiple Comparison Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	-1.361	2.197	25.23	30	CDF	0.9924	Non-Significant Effect
		32.9	-0.3048	2.197	25.23	30	CDF	0.8847	Non-Significant Effect
		100	-0.2177	2.197	25.23	30	CDF	0.8636	Non-Significant Effect
		159	-0.664	2.197	25.23	30	CDF	0.9474	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2394.7	598.675	4	0.5675	0.6870	Non-Significant Effect
Error	79125.7	1055.01	75			
Total	81520.4		79			

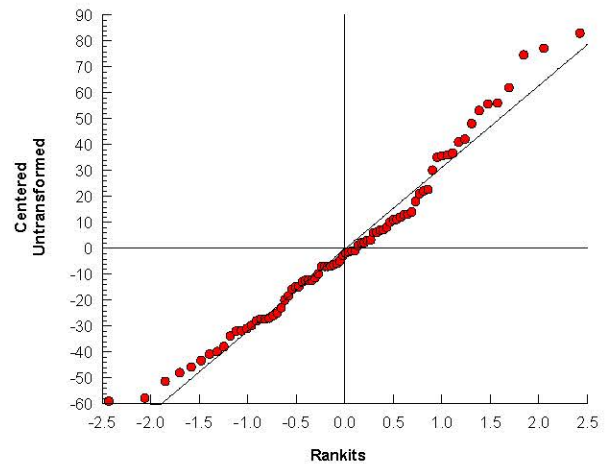
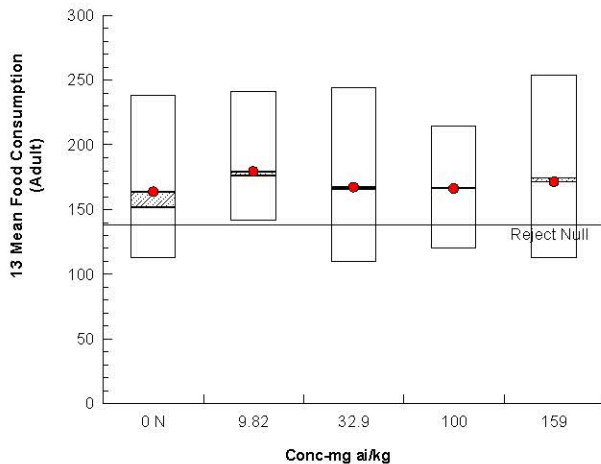
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	1.18	13.28	0.8814	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9713	0.9579	0.0684	Normal Distribution

### 13 Mean Food Consumption (Adult) Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	163.4	144.6	182.3	151.5	112	238	8.844	21.65%	0.00%
9.82		16	179.1	162.3	195.8	176	141	241	7.847	17.53%	-9.56%
32.9		16	166.9	148.7	185.1	165.5	109	244	8.543	20.47%	-2.14%
100		16	165.9	151.4	180.5	166.5	120	214	6.809	16.41%	-1.53%
159		16	171.1	153.2	189	174	112	254	8.399	19.64%	-4.67%

### Graphics





# CETIS Analytical Report

Report Date: 13 Apr-20 20:13 (p 26 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSPP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 13-8240-1353	Endpoint: 13 Mean Food Consumption (Adult)	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:04	Analysis: Parametric-Control vs Ord.Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSPP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		12.47%

### Williams Multiple Comparison Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	-1.361	1.666	19.13	30	CDF	>0.05	Non-Significant Effect
		32.9	-0.3048	1.74	19.98	30	CDF	>0.05	Non-Significant Effect
		100	-0.2177	1.764	20.25	30	CDF	>0.05	Non-Significant Effect
		159	-0.3955	1.775	20.38	30	CDF	>0.05	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2394.7	598.675	4	0.5675	0.6870	Non-Significant Effect
Error	79125.7	1055.01	75			
Total	81520.4		79			

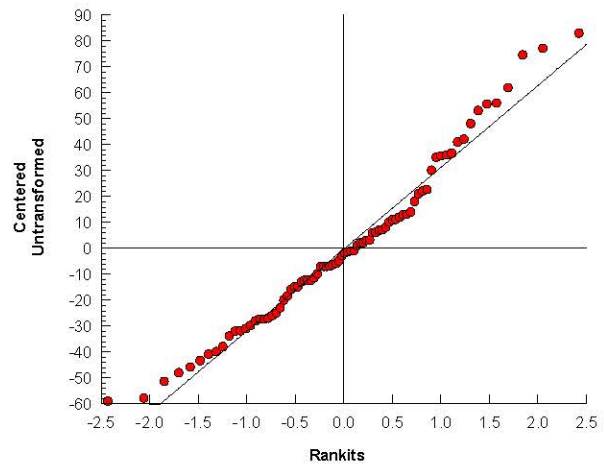
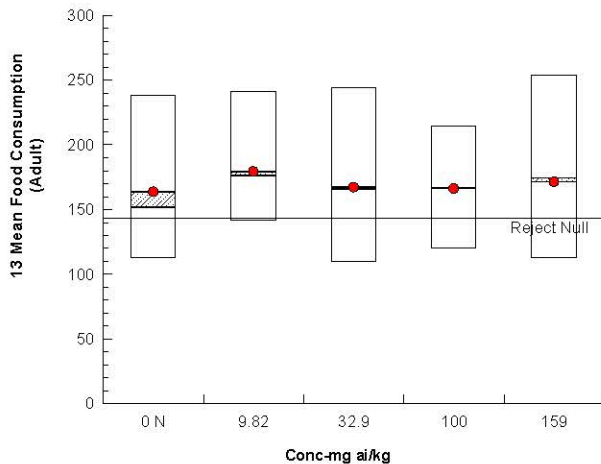
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	1.18	13.28	0.8814	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9713	0.9579	0.0684	Normal Distribution

### 13 Mean Food Consumption (Adult) Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	163.4	144.6	182.3	151.5	112	238	8.844	21.65%	0.00%
9.82		16	179.1	162.3	195.8	176	141	241	7.847	17.53%	-9.56%
32.9		16	166.9	148.7	185.1	165.5	109	244	8.543	20.47%	-2.14%
100		16	165.9	151.4	180.5	166.5	120	214	6.809	16.41%	-1.53%
159		16	171.1	153.2	189	174	112	254	8.399	19.64%	-4.67%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:13 (p 27 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 11-9817-3040	Endpoint: 14 Weight Gain MALE adult	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:00	Analysis: Parametric-Control vs Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	159	>159	n/a		91.31%

### Dunnett Multiple Comparison Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	1.215	2.203	67.54	30	CDF	0.2898	Non-Significant Effect
		32.9	1.07	2.203	68.65	29	CDF	0.3485	Non-Significant Effect
		100	1.781	2.203	67.54	30	CDF	0.1175	Non-Significant Effect
		159	1.964	2.203	69.91	28	CDF	0.0826	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	36068.8	9017.19	4	1.199	0.3189	Non-Significant Effect
Error	541609	7522.35	72			
Total	577678		76			

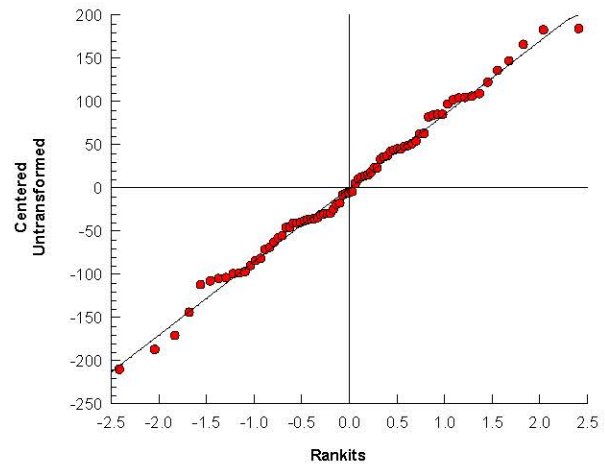
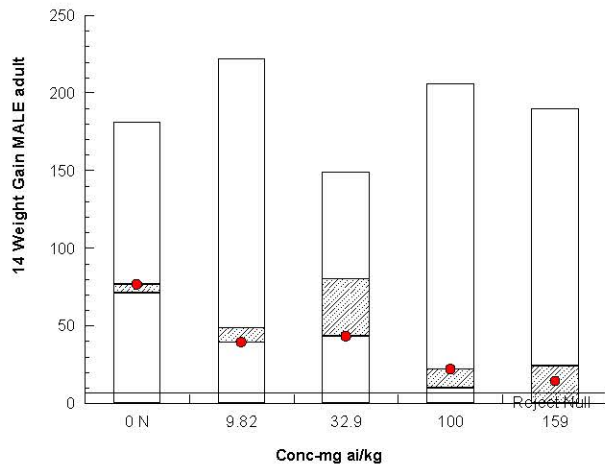
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	7.72	13.28	0.1024	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9909	0.9564	0.8636	Normal Distribution

### 14 Weight Gain MALE adult Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	76.56	45.26	107.9	71	-23	181	14.69	76.74%	0.00%
9.82		16	39.31	-19.61	98.23	48.5	-171	222	27.64	281.28%	48.65%
32.9		15	43.2	2.625	83.77	80	-69	149	18.92	169.60%	43.58%
100		16	21.94	-18.73	62.61	10	-86	206	19.08	347.93%	71.35%
159		14	14.21	-46.53	74.96	-10	-157	180	28.12	740.13%	81.43%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:13 (p 28 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 10-6257-3751	Endpoint: 14 Weight Gain MALE adult	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:04	Analysis: Parametric-Control vs Ord.Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	32.9	100	57.36		73.35%

### Williams Multiple Comparison Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	1.215	1.667	51.11	30	CDF	>0.05	Non-Significant Effect
		32.9	1.135	1.739	54.21	29	CDF	>0.05	Non-Significant Effect
		100*	1.781	1.765	54.11	30	CDF	<0.05	Significant Effect
		159*	1.964	1.769	56.16	28	CDF	<0.05	Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	36068.8	9017.19	4	1.199	0.3189	Non-Significant Effect
Error	541609	7522.35	72			
Total	577678		76			

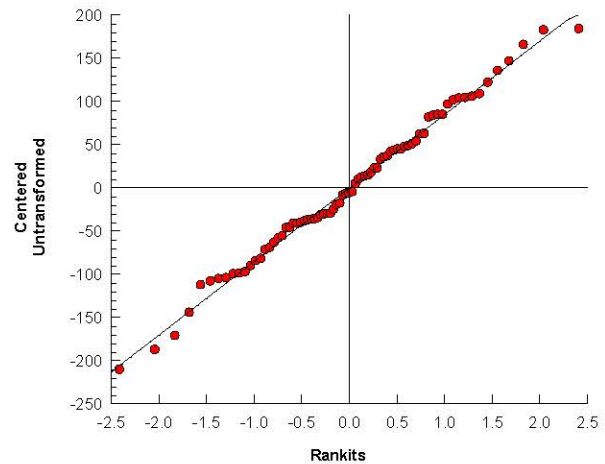
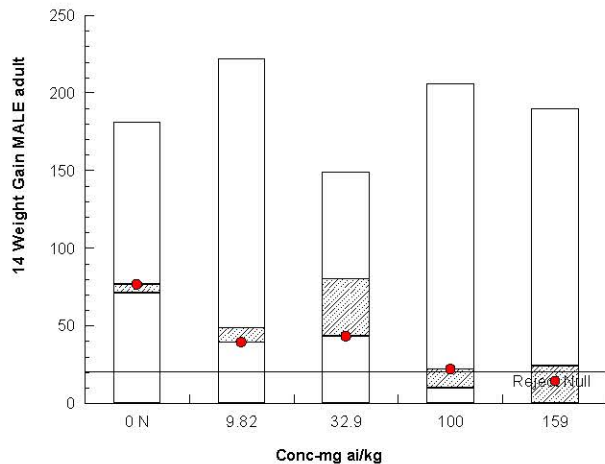
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	7.72	13.28	0.1024	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9909	0.9564	0.8636	Normal Distribution

### 14 Weight Gain MALE adult Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	76.56	45.26	107.9	71	-23	181	14.69	76.74%	0.00%
9.82		16	39.31	-19.61	98.23	48.5	-171	222	27.64	281.28%	48.65%
32.9		15	43.2	2.625	83.77	80	-69	149	18.92	169.60%	43.58%
100		16	21.94	-18.73	62.61	10	-86	206	19.08	347.93%	71.35%
159		14	14.21	-46.53	74.96	-10	-157	180	28.12	740.13%	81.43%

### Graphics



# CETIS Analytical Report

Report Date: 13 Apr-20 20:13 (p 29 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 15-1952-8278	Endpoint: 15 Weight Gain FEMALE adult	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:00	Analysis: Parametric-Control vs Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	100	159	126.1		83.44%

### Dunnett Multiple Comparison Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	0.37	2.203	90.79	30	CDF	0.6633	Non-Significant Effect
		32.9	2.191	2.203	92.29	29	CDF	0.0512	Non-Significant Effect
		100	2.085	2.203	90.79	30	CDF	0.0644	Non-Significant Effect
		159*	3.435	2.203	93.97	28	CDF	0.0018	Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	218098	54524.6	4	4.011	0.0054	Significant Effect
Error	978656	13592.4	72			
Total	1196750		76			

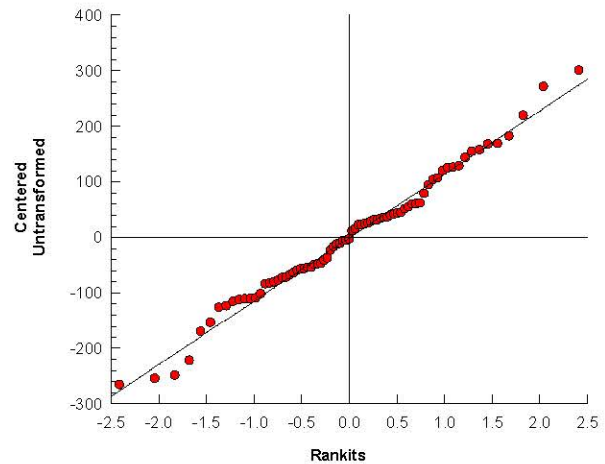
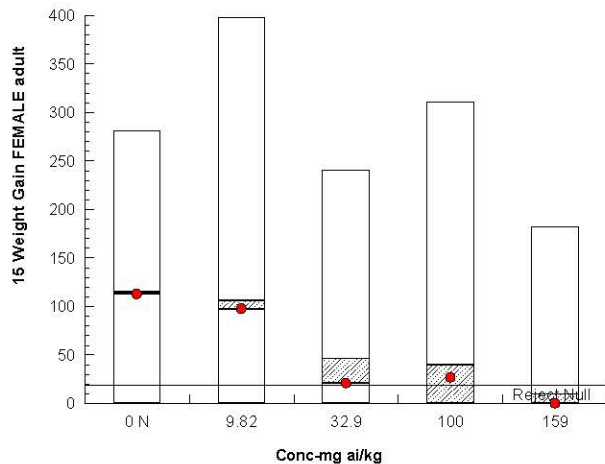
### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	3.305	13.28	0.5081	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9868	0.9564	0.6095	Normal Distribution

### 15 Weight Gain FEMALE adult Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	112.6	52.38	172.9	115	-41	281	28.26	100.38%	0.00%
9.82		16	97.38	24.5	170.2	106	-157	398	34.19	140.45%	13.54%
32.9		15	20.8	-50.72	92.32	46	-245	240	33.35	620.94%	81.53%
100		16	26.69	-31.37	84.75	-13	-143	298	27.24	408.28%	76.30%
159		14	-33.93	-83.23	15.37	-24.5	-145	148	22.82	-251.66%	130.13%

### Graphics





# CETIS Analytical Report

Report Date: 13 Apr-20 20:13 (p 30 of 30)  
Test Code/ID: 035505 50308302 / 10-1201-6135

## OCSP 850.2300 Chronic Avian Reproduction

Wildlife International

Analysis ID: 00-4065-3141	Endpoint: 15 Weight Gain FEMALE adult	CETIS Version: CETISv1.9.6
Analyzed: 13 Apr-20 20:04	Analysis: Parametric-Control vs Ord.Treatments	Status Level: 1
Batch ID: 03-8385-5999	Test Type: Chronic Avian Repro	Analyst:
Start Date: 14 Apr-07	Protocol: OCSP 850.2300 Chronic Bird	Diluent:
Ending Date: 11 Oct-07	Species: Anas Platyrhynchos	Brine:
Test Length: 180d 0h	Taxon:	Source: Whistling Wings, Inc. Age: 27w

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PM SD
Untransformed	C > T	9.82	32.9	17.97		67.03%

### Williams Multiple Comparison Test

Control	vs	Conc-mg ai/k	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		9.82	0.37	1.667	68.7	30	CDF	>0.05	Non-Significant Effect
		32.9*	2.191	1.739	72.87	29	CDF	<0.05	Significant Effect
		100*	2.154	1.765	72.74	30	CDF	<0.05	Significant Effect
		159*	3.435	1.769	75.49	28	CDF	<0.05	Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	218098	54524.6	4	4.011	0.0054	Significant Effect
Error	978656	13592.4	72			
Total	1196750		76			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	3.305	13.28	0.5081	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9868	0.9564	0.6095	Normal Distribution

### 15 Weight Gain FEMALE adult Summary

Conc-mg ai/kg	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	16	112.6	52.38	172.9	115	-41	281	28.26	100.38%	0.00%
9.82		16	97.38	24.5	170.2	106	-157	398	34.19	140.45%	13.54%
32.9		15	20.8	-50.72	92.32	46	-245	240	33.35	620.94%	81.53%
100		16	26.69	-31.37	84.75	-13	-143	298	27.24	408.28%	76.30%
159		14	-33.93	-83.23	15.37	-24.5	-145	148	22.82	-251.66%	130.13%

### Graphics

